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# **Wisconsin Projections 2002 - 2012**

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## **Employment in Industries and Occupations**

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**Prepared by:**

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April 2005**



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## Projections Panel Participants

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Special thanks to the following people who served on the Projections Panel. This panel of economists and analysts from government, business, and academia used their expertise to provide a projection of employment in 50 key industries. These projections were then pooled together and used as the basis for Wisconsin's industrial employment projections.

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## Wisconsin Projections 2002 - 2012

### Executive Summary

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Wisconsin is expected to add 394,000 jobs between 2002 and 2012. With growth of 13%, employment is projected to increase from 2.96 to 3.36 million jobs. In addition to newly created jobs, another 706,000 job openings are anticipated due to replacement needs. In order to fill all of the expected job openings, Wisconsin will continue to need people with a wide variety of skills, interests, and educational backgrounds.

It is important to note the projections are only for one point in time, in this case 2012. In order to gauge which industries and occupations are expected to have net increases or decreases in jobs over time, the employment anticipated in 2012 is compared to employment in 2002. The projections do not provide information about the dynamics of employment in the intervening years between 2002 and 2012. Employment overall, and employment in any particular industry or occupation, may have many ups and downs during the ten year period. However, the projections only indicate where employment is expected to be in 2012 relative to 2002.

#### Industry Employment

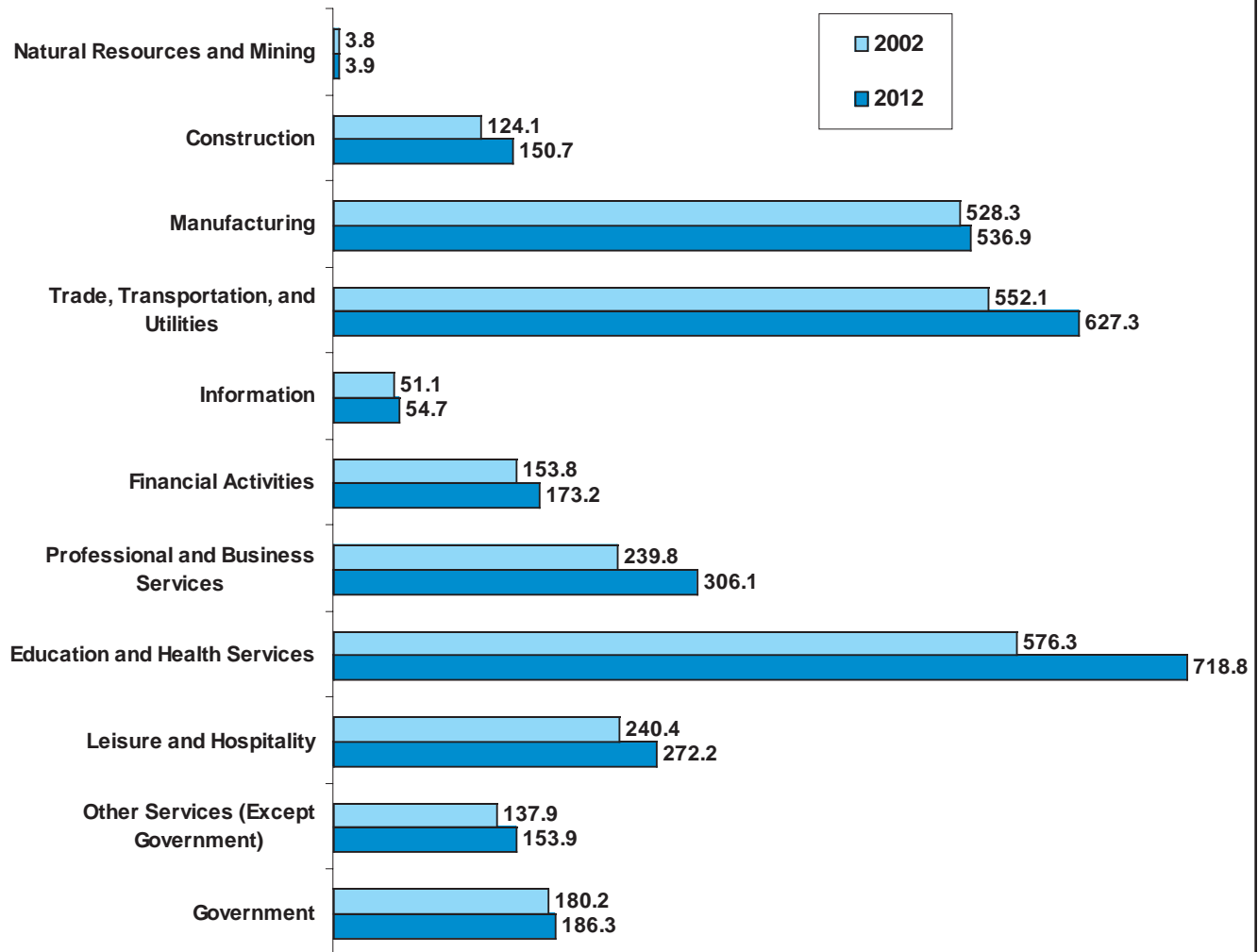
Each super-sector is expected to add jobs (see figure ES-1). Education and health services will lead the way with an anticipated 142,000 new jobs. Trade, transportation, and utilities is second with 75,000 additional jobs. Natural resources and mining is expected to have the smallest growth with about 100 new jobs.

Although manufacturing has been losing jobs since the year 2000, this super-sector is expected to have about 8,600 more jobs in 2012 than in 2002. However, due to industry coding adjustments that were made in 2003, it is difficult to precisely compare manufacturing employment in 2002 to subsequent years. The adjustments in industry coding involved shifting some employment which was previously recorded under manufacturing into other industries. This lack of data comparability through time is called a series break.

In 2002 manufacturing employment was 528,000 (prior to the series break). In 2004, employment was estimated to be just under 502,000 (after the series break). About 20,000 of this decline is due to an actual economic loss of manufacturing jobs. The remainder of the difference is due to adjustments in industry coding.

Despite recent declines in manufacturing employment, manufacturing jobs now appear to be rebounding. In 2004 Wisconsin manufacturing exports reached a record level of \$12.4 billion, which was a 10.4% increase over their 2003 level. Also, during the last half of 2004 hiring in manufacturing improved. Overall, with all the ups and downs manufacturing jobs will encounter during the ten year period, manufacturing is still expected to have more jobs than in 2012 than in 2002.

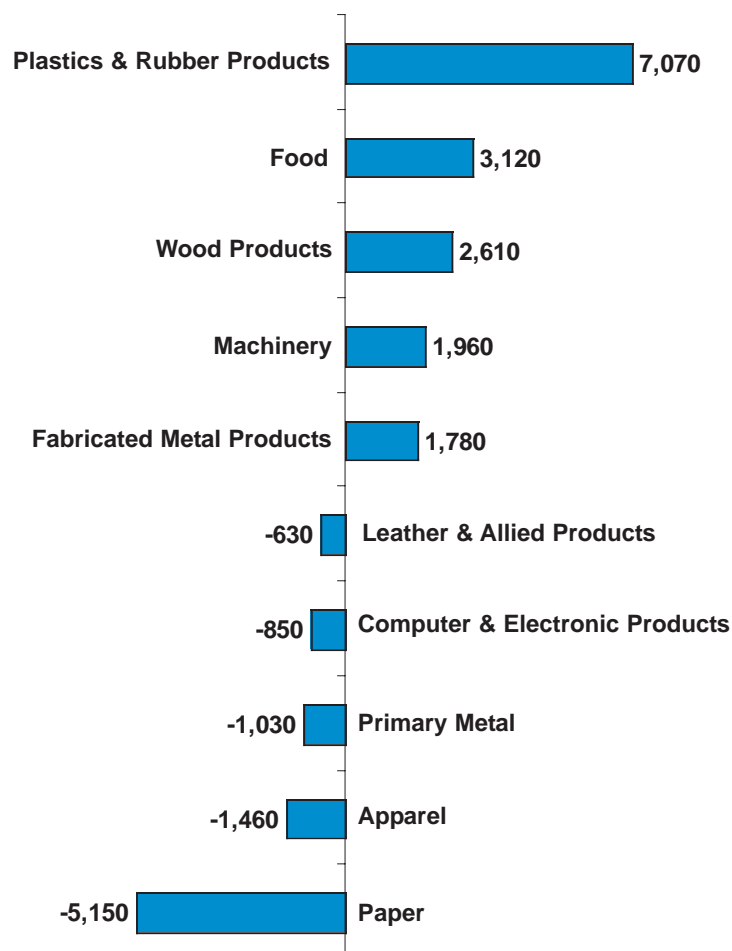
**Figure ES-1: Employment by Super-Sector, 2002 and 2012**  
(in thousands)



Source: Office of Economic Advisors analysis of 2002 CES (3/03 Benchmark), 2002 QCEW, and 2002-2012 Wisconsin Projections data. Wisconsin Department of Workforce Development.

As shown in figure ES-2, the manufacturing industries projected to add the most jobs are plastics and rubber products, food, and wood products. The manufacturing industries expected to lose the most jobs are paper, apparel, and primary metal.

**Figure ES-2: Manufacturing Industries Adding and Losing the Most Jobs, 2002 to 2012**



Source: Office of Economic Advisors analysis of 2002 CES (3/03 Benchmark), 2002 QCEW, and 2002-2012 Wisconsin Projections data. Wisconsin Department of Workforce Development

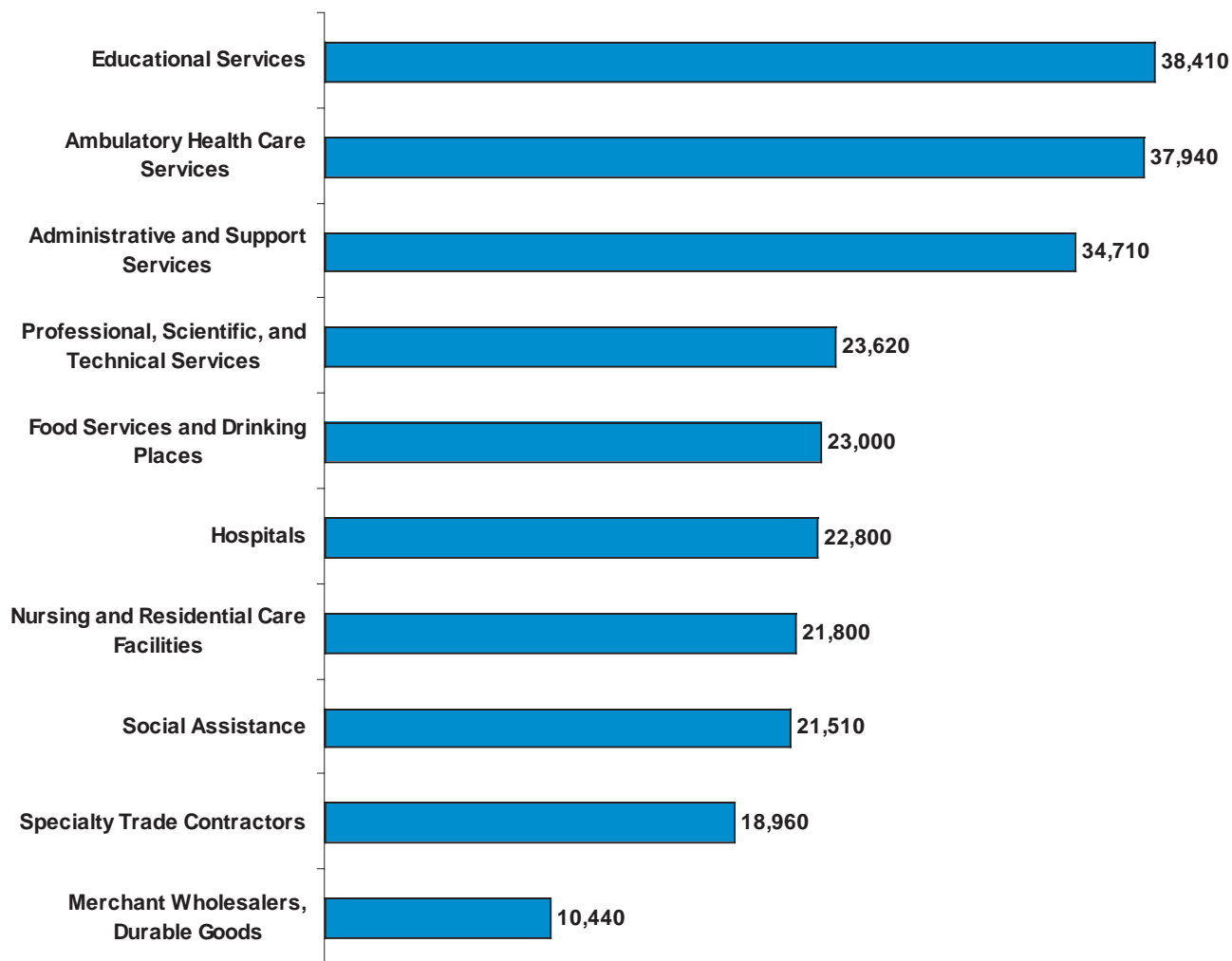
The ten Wisconsin industries expected to add the most new jobs are illustrated in figure ES-3. These industries are expected to contribute six out of every ten newly created jobs. The top three industries -- educational services, ambulatory health care services, and administrative and support services -- are expected to account for nearly 30% of job creation.



Educational services tops the list with 38,410 new jobs expected. Educational services includes all public and private elementary, secondary, and post-secondary schools. Also included are educational support services such as testing services, guidance counseling services, and student exchange programs. Within this industry, the occupations with the most job openings (new jobs plus replacements) will be teacher assistants, secondary school teachers (except special and vocational education) and elementary teachers (except special education).

Ambulatory health care services is projected to add 37,940 jobs. This industry is made up of offices of physicians, dentists, and other health practitioners. The industry also includes home health care services. Registered nurses, medical assistants, and dental assistants will be the occupations with the most job openings.

**Figure ES-3: Industries Adding the Most Jobs, 2002 to 2012**



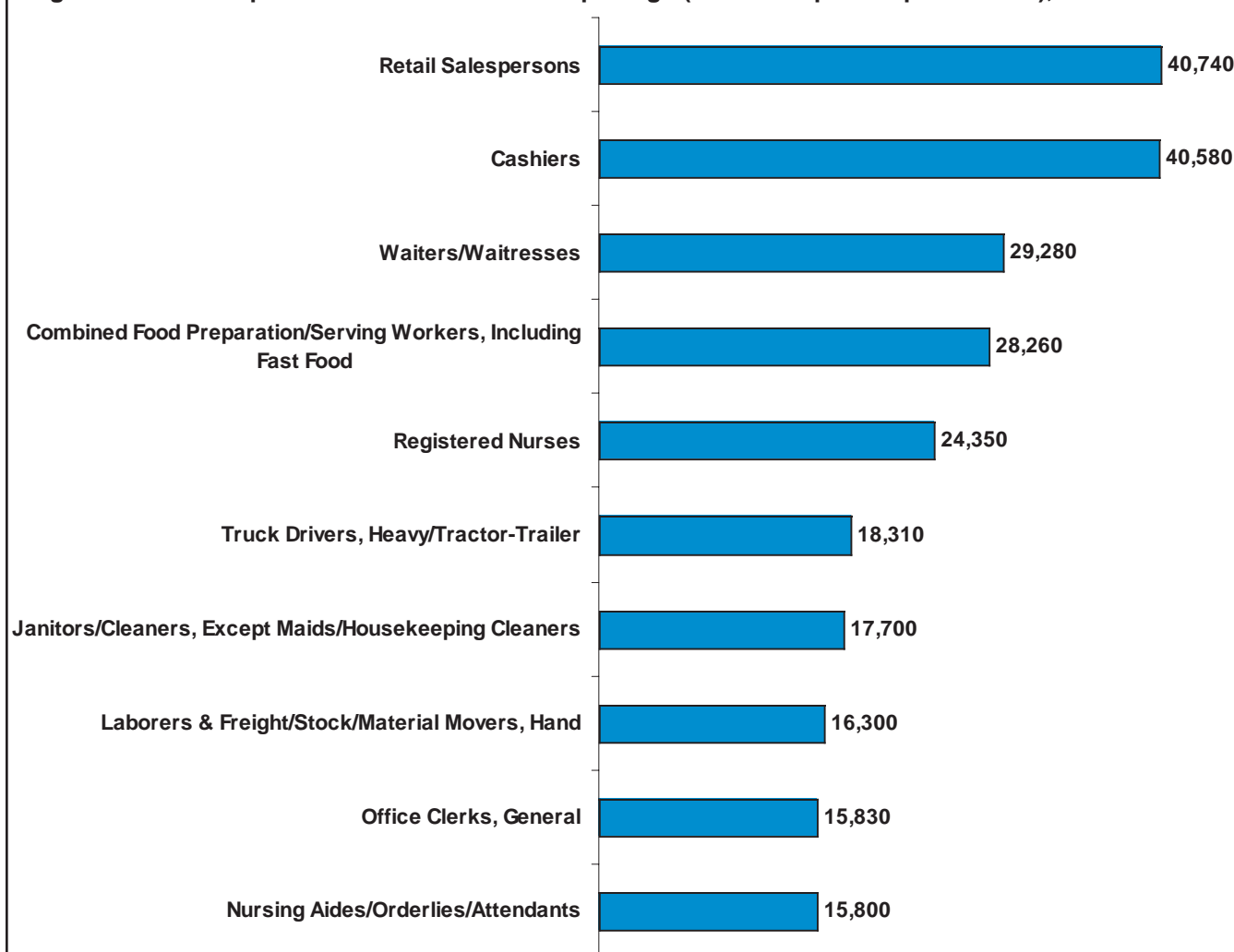
Source: Office of Economic Advisors analysis of 2002 CES (3/03 Benchmark), 2002 QCEW, and 2002-2012 Wisconsin Projections data. Wisconsin Department of Workforce Development.

Administrative and support services is expected to add the third largest number of new jobs with 34,710. This group of businesses performs functions that support the day-to-day operations of other organizations. Some examples of the type of services offered are travel arrangements, temporary employment services, security services, cleaning services, and mailing services. The occupations anticipated to have the most job openings are janitors and cleaners (except maids and housekeeping cleaners), general office clerks, and security guards.

### Occupational Employment

Over the 2002-2012 period, Wisconsin is expected to have just over 1.1 million job openings for people entering the state's 765 occupations. About 394,000 of these openings will be newly created jobs. The remaining 706,000 openings will occur due to deaths, retirements, and other permanent exits from occupations. Openings resulting from people changing employers, but staying in the same occupation, are not included in the projections. The ten occupations expected to have the most job openings are outlined in figure ES-4.

**Figure ES-4: Occupations with the Most Job Openings (New Jobs plus Replacements), 2002 to 2012**

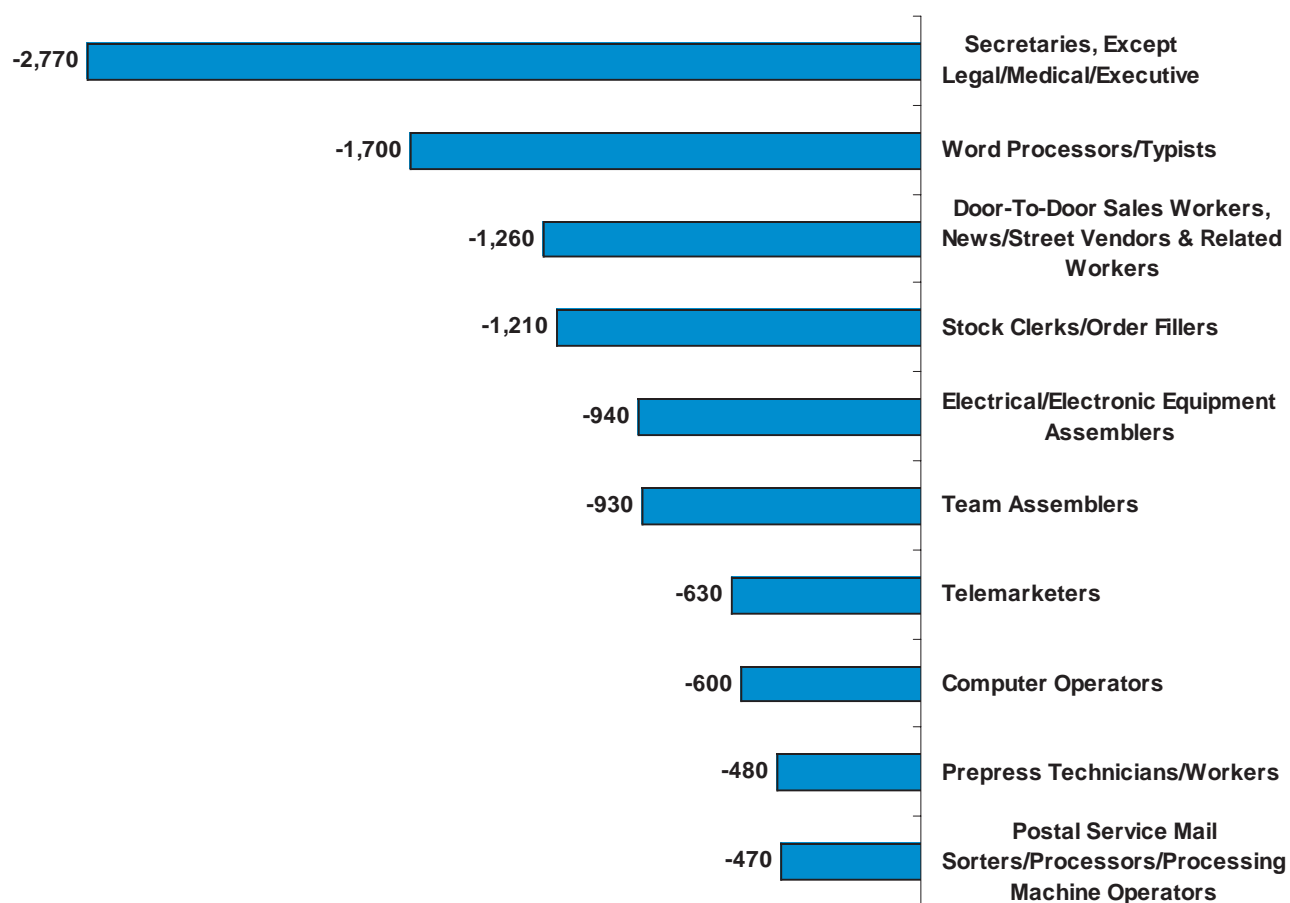


Source: Office of Economic Advisors analysis of 2002 CES (3/03 Benchmark), 2002 QCEW, and 2002-2012 Wisconsin Projections data. Wisconsin Department of Workforce Development.

The five occupations expected to have the most jobs openings are retail salespersons, cashiers, waiters/waitresses, combined food preparation and serving workers, and registered nurses. The job openings for registered nurses are linked to growth in Wisconsin's population over age 45 and that group's increasing demand for health care services. Also, a large number of people are expected to leave the occupation of nursing either to retire or move on to other careers. The number of openings in the four remaining occupations are connected to growth in the retail trade and leisure/hospitality industries, as well as the tendency for most people to hold these jobs for relatively short periods of time.

Overall, 101 occupations are expected to have a net loss of jobs. All together, these occupations are projected to have a net loss of 18,660 jobs. The ten occupations with the largest declines represent 60% of anticipated losses. These ten occupations are shown in figure ES-5.

**Figure ES-5: Occupations Losing the Most Jobs, 2002 to 2012**



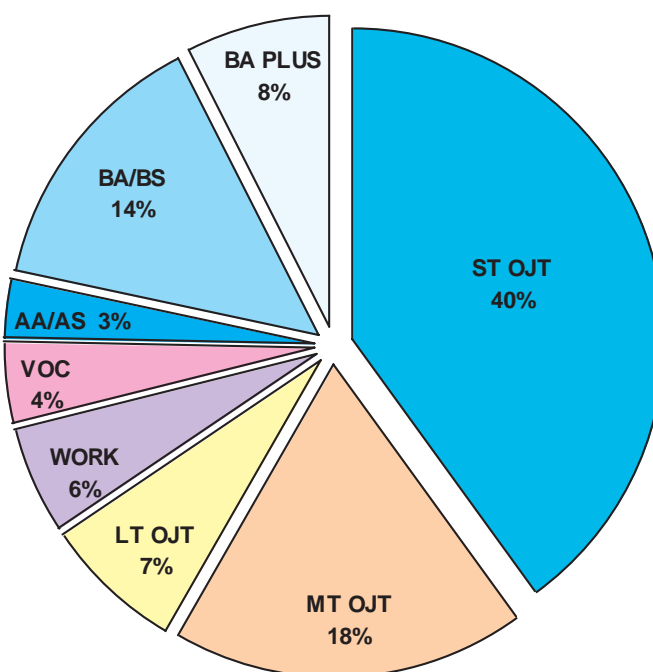
Source: Office of Economic Advisors analysis of 2003 CES (3/03 Benchmark), 2002 QCEW, and 2002-2012 Wisconsin Projections data. Wisconsin Department of Workforce Development.

Secretaries (except legal, medical, and executive) and word processors/typists are projected to lose the most jobs. These two occupations are declining because many people in the workplace are now expected to perform for themselves many of the duties formerly assigned to a secretary or word processor. In addition, other functions of secretaries and word processors have been assigned to general office clerks or information clerks.

## Education and Training

Each occupation is assigned to one of eleven education and training categories. Each assignment only gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements. Figure ES-6 illustrates the percentage of job openings anticipated in each education and training group.

**Figure ES-6: Education and Training Paths, by Percentage of Job Openings  
2002 to 2012**



Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

Among the job openings anticipated between 2002-2012, 58% fall into either the short- or moderate-term on-the-job training categories. Short-term on-the-job training (ST OJT) means the duties of the job can be learned at the workplace in one month or less. Moderate-term on-the-job training (MT OJT) lasts one to twelve months and may involve a combination of on-the-job experience and informal training. Some examples of occupations in these training categories are cashiers, home health aides, and waiters/waitresses.

About 7% of openings will typically require long-term on-the-job training (LT OJT). Long-term training takes more than a year and usually involves a combination of training at the job site and formal classroom instruction. The training is often in the form of an adult apprenticeship. Occupations in this group include carpenters, electricians, and dental laboratory technicians.

## Executive Summary

Another 4% of openings will generally require postsecondary vocational training (VOC). These are formal training programs that last from a few weeks to more than a year. Included in this category are cosmetologists, mechanical drafters, and massage therapists.

Work experience in a related occupation (WORK) will be the general requirement in 6% of the job openings. These jobs require skills and experience gained in related positions. Many of these jobs are first-line supervisory positions.

An associate degree (AA/AS) will be the typical requirement in 3% of openings. This degree requires two years of full-time academic work beyond high school. Examples of occupations assigned to this category are computer support specialists, paralegals, and respiratory therapists.

The remaining 22% of the job openings will generally require four or more years of college, or a bachelor's or higher degree in combination with work experience. (Bachelor's degree: BA/BS; Bachelor's or higher degree plus work experience: BA PLUS). Database administrators, physicians, occupational therapists, and human resources managers all fall into this group.

## Overview of this Edition

This edition of *Wisconsin Projections* is divided into two chapters. Chapter 1 focuses on employment in 90 Wisconsin industries. The chapter provides information on which industries will have the largest employment in 2012, and which industries will add the most new jobs, lose the most jobs, and grow the fastest.

Chapter 2 examines employment in 765 occupations. In addition to providing the projections for all of these occupations, this chapter identifies the occupations which will have the largest employment in 2012, and which occupations will add the most new jobs, have the most total job openings, lose the most jobs, and grow the fastest. Chapter 2 also assigns an education or training path to each occupation. Wage information is included as well.

Appendix 1 is an alphabetical list of each occupation's complete title. This appendix also includes the page number of each occupation's detailed projection. Appendix 2 describes additional resources available for job seekers, counselors, and employers. Appendix 3 is a brief explanation of the methodology used to develop the industrial and occupational employment projections.

## Additional Projections Information

Projections data for 2002-2012, and other related information, is available on the Office of Economic Advisors website, [http://dwd.wisconsin.gov/oea/employment\\_projections.htm](http://dwd.wisconsin.gov/oea/employment_projections.htm). The information includes outlooks for Wisconsin as a whole and for each Workforce Development Area.

Short-term projections for 2003-2005 are also available on the website listed above.

Interactive queries of the 2002-2012 and 2003-2005 projections data, and links of the projections data to other types of information, are available on WORKnet, at <http://worknet.wisconsin.gov>.

## Notes

The projections were developed using the 2003 OES Survey, 2002 QCEW, and 2002 CES (3/03 Benchmark) data produced by the Bureau of Workforce Information, Wisconsin Department of Workforce Development. Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau was also used.

To the extent possible, the projections take into account anticipated changes in Wisconsin's economy between 2002 to 2012. It is important to note that unanticipated events may affect the accuracy of the projections.

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## Wisconsin Projections 2002 - 2012

### Chapter 1: Employment in Industries

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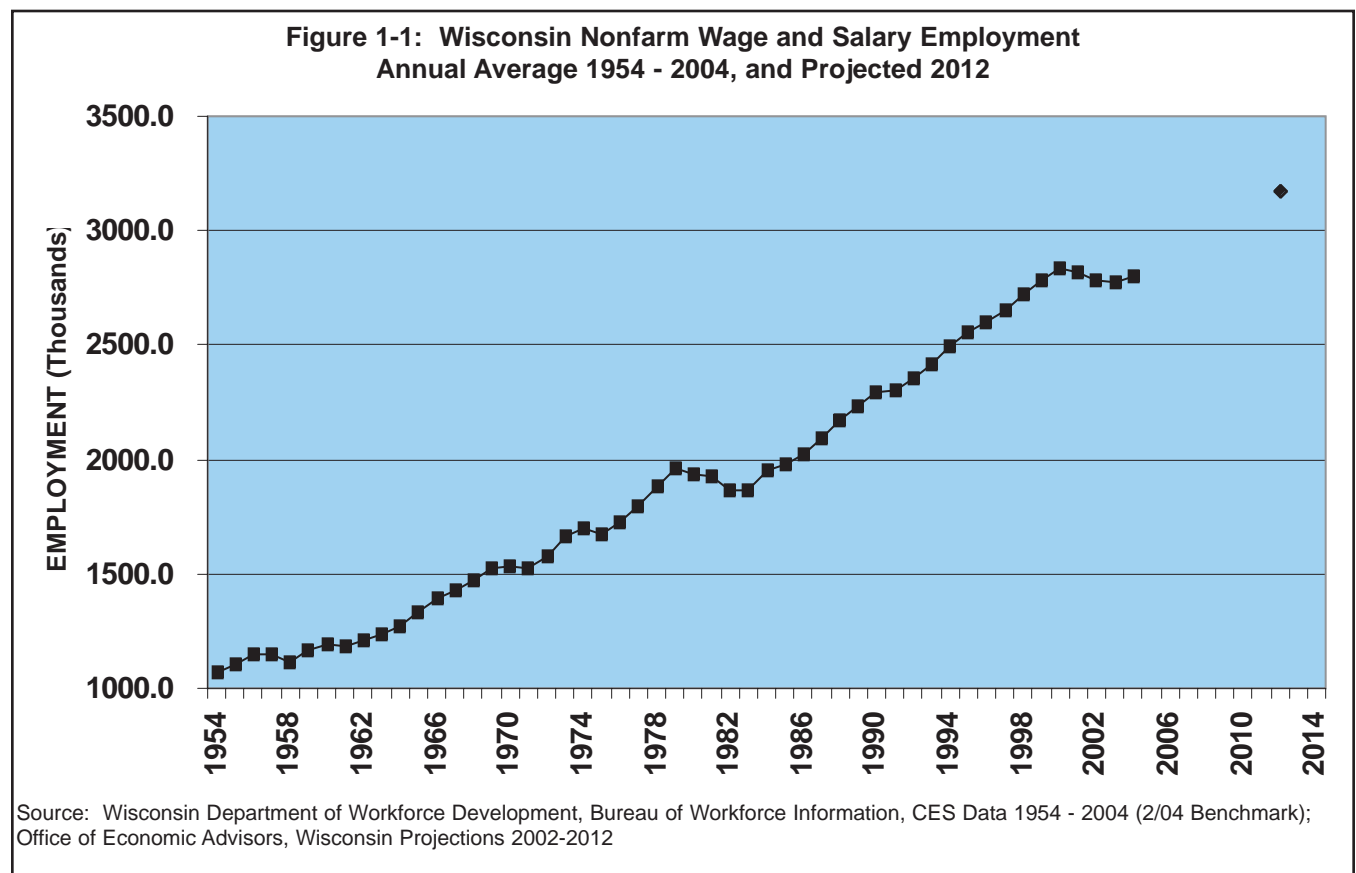
#### OVERVIEW

##### What is the Employment Outlook for Wisconsin?

The year 2000 is held up as a banner year for the number of jobs in Wisconsin. In this year, the number of jobs reached a historic peak of slightly more than 2.8 million (see figure 1-1). However employment started declining in 2001, and by the end of 2003, the state had lost nearly 59,000 jobs. Yet, despite this drop the number of jobs in 2003 was still higher than in 1998. Also, the job levels in each of the years from 2001 through 2003 still rank in Wisconsin's top six.

In 2004 hiring gained momentum, and Wisconsin's annual average employment once again surpassed 2.8 million jobs. Looking out further to 2012, Wisconsin's economy is expected to continue growing. In 2012, the number of jobs is expected to surpass 2000 employment by 345,000 jobs and reach a level of nearly 3.2 million.

This book specifically focuses on the years 2002 and 2012. In this time period, the state is expected to add over 396,000 jobs for a growth rate of 14.2%. The total number of jobs is projected to increase from 2.79 to 3.18 million.<sup>(1)</sup>



<sup>(1)</sup>The number of jobs stated in this section are based on the Current Employment Statistics (CES) definition of employment. CES employment numbers do not include private household, unpaid family, or self-employed workers. The projections data include estimates for these types of workers. In the following pages the total number of jobs includes these workers.



## OVERVIEW (Continued)

### How is Employment Defined?

In the projections, employment refers to the number of jobs in an industry or an occupation. These jobs may be part- or full-time. Only jobs in nonfarm establishments are considered. In addition, employment includes jobs regardless of whether they are covered by Wisconsin's unemployment insurance laws. Furthermore, self-employed, unpaid family, and private household workers are included in order to get a more complete picture of total employment in Wisconsin.

Self-employed and unpaid family workers may work in any industry. However, the data used for these workers are collected on an occupational, rather than an industry basis, so an industry breakdown is not available.

Self-employed workers are defined as owners of *nonfarm, unincorporated*, businesses who rely on their firms' profits for their main source of income. People who earn most of their income from a nonfarm job and who also own an unincorporated business are not included as self-employed. The jobs these people hold are counted in the industry where they are primarily employed. In addition, people who are owners of nonfarm, incorporated, businesses are not included as self-employed. This employment is counted in the industry in which the corporation falls.

Unpaid family workers are people who work unpaid for at least fifteen hours a week in family owned, nonfarm, businesses. Private household workers are employed in private homes and perform jobs such as nanny, maid, and gardener.

### What is the Difference between an Industry and an Occupation?

An industry is a distinct group of businesses. Some examples of industries are furniture stores, paper mills, and electrical contractors.

An occupation describes the type of work a person does. Some examples of occupations are carpenters, truck drivers, and retail salespeople.

Some industries, such as hospitals and local government, employ people in a wide variety of occupations. Other industries, such as non-metallic mineral mining and restaurants, employ people in relatively few occupations.

Likewise, some occupations, such as secretaries and general office clerks, are found in almost every industry. Other occupations, such as roofers and bookbinders, are found in only a few industries.

### How are Industries Defined and Classified?

Businesses are defined and organized by North American Industry Classification System (NAICS) codes.<sup>(2)</sup> NAICS combines firms with similar production processes.

NAICS codes are six-digit numbers. At the six-digit level there are 1,179 industries. These industries are then grouped into 725 NAICS industries (at the five-digit level), 317 industry groups (four-digit), 100 sub-sectors (three-digit) and 20 sectors (two-digit). The 20 sectors are further combined to form eleven super-sectors. In this book, industry employment data are presented for the eleven super-sectors and 86 sub-sectors.

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<sup>2</sup>For more information on NAICS and for industry descriptions refer to Executive Office of the President, Office of Management and Budget, North American Industry Classification System: United States, 2002 (Lanham, MD: BERNAN, 2002). Information is also available on-line at <http://stats.bls.gov/bls/naics.htm> and <http://www.census.gov/epcd/www/naics.html>.

## OVERVIEW (Continued)

### What Factors Affect Industry Employment?

In general, industry employment is influenced by the interaction of these factors:

- Domestic and global supply of, and demand for, products and services.
- Cost and availability of labor.
- Cost and ease of substituting capital for labor.
- Technological change.
- Other factors such as demographics, government subsidies, regulations, public acceptance, and taxes.

Of the factors listed above, the two that will have the greatest impact on Wisconsin's industry employment during the next ten to thirty years are the aging of the state's population and technological change.

### What Information is Available about Industry Employment in this Book?

The relative importance of employment in Wisconsin's industries is examined using four criteria. These criteria are:

- 2002 Employment: The estimated number of jobs in the industry in 2002.
- 2012 Employment: The projected number of jobs in the industry in 2012.
- Employment Change: The difference in the number of jobs between 2002 and 2012. A positive number means employment is growing due to the creation of new jobs. A negative number indicates employment is declining in the industry.
- Percent Change: An indication of how fast employment is expected to increase or decrease from 2002 to 2012. The larger the positive percent change, the faster employment is growing. Likewise, the larger the negative percent change, the faster employment is declining.

It is important to note the projections are only for one point in time, in this case 2012. In order to gauge which industries are expected to have net increases or decreases in jobs over time, the employment anticipated in 2012 is compared to employment in 2002. The projections do not provide information about the dynamics of employment in the intervening years between 2002 and 2012. Employment in any particular industry may oscillate during the ten year period. However, the projections only indicate where employment is expected to be in 2012 relative to 2002.

This chapter first examines employment in super-sectors and then in sub-sectors. Among the 86 sub-sectors, the ones with the largest employment in 2012, adding the most jobs, growing the fastest, and experiencing the greatest employment declines are highlighted. This chapter then examines historical employment and anticipated trends for a group of select sub-sectors.

## EMPLOYMENT BY SUPER-SECTOR

Wisconsin industries are grouped together into eleven super-sectors. These super-sectors are

- Natural Resources and Mining
- Construction
- Manufacturing
- Trade, Transportation, and Utilities
- Information
- Financial Activities
- Professional and Business Services
- Education and Health Services
- Leisure and Hospitality
- Other Services
- Government

### Education and Health Services Dominate

Wisconsin's largest super-sector is education and health services (see figure 1-2). This super-sector includes state and local government employment in education and hospitals.

With just over 576,000 jobs, this group had the most jobs in 2002. This super-sector will continue to be an employment leader in 2012, when it is expected to have nearly 719,000 jobs. In addition, about 142,000 jobs will be created in this super-sector, accounting for 36% of Wisconsin's new jobs.

The dominance of this super-sector is further underscored by the growing employment gap between it and the next largest super-sector (trade, transportation, and utilities). By 2012, the gap between these two groups will widen from 24,000 to 92,000 jobs.

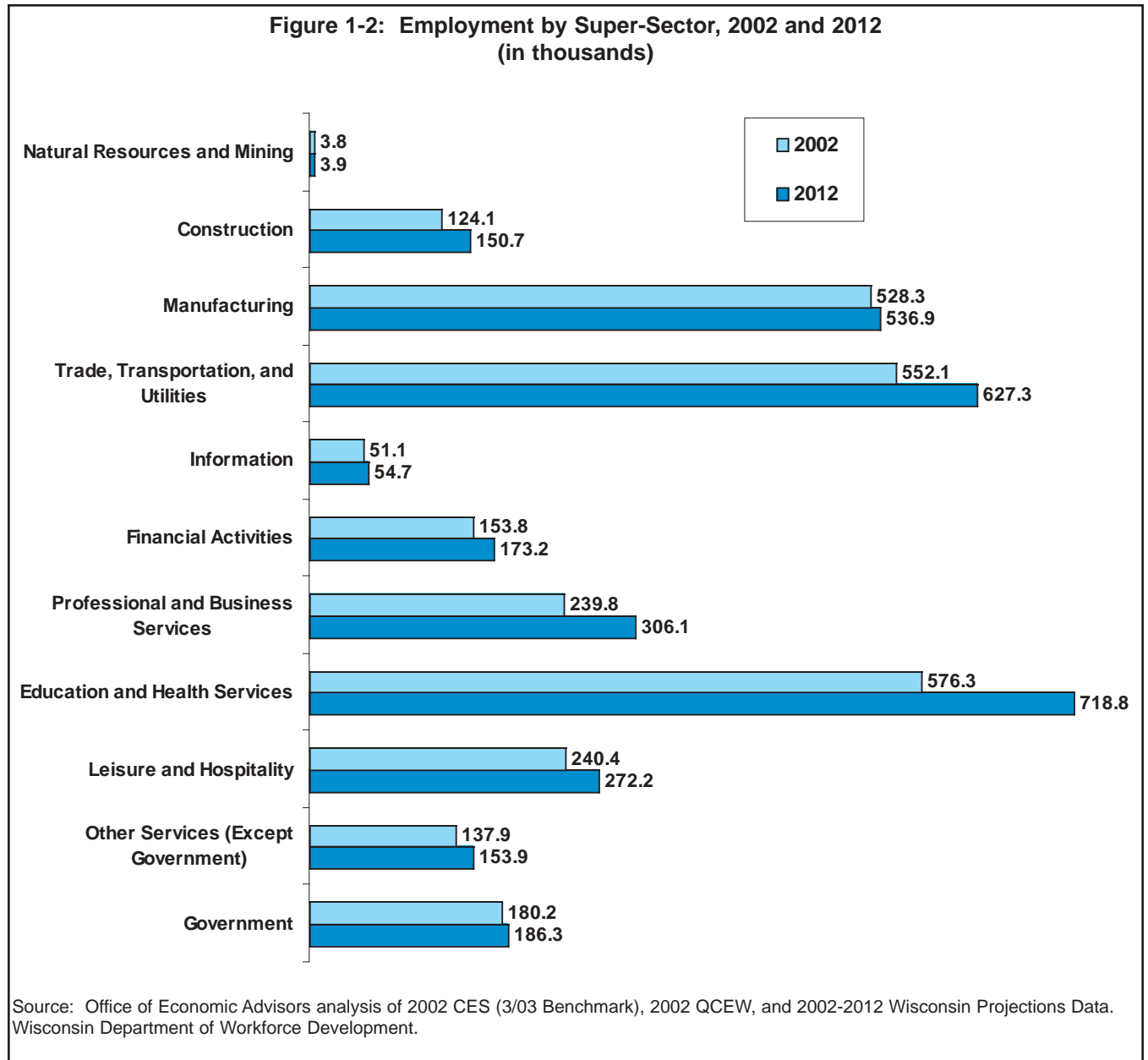
Within education and health services, health care accounts for the largest share of employment (growing from 46% to 49%) and the most job creation (60%). Health care employment continues to be spurred by the aging of Wisconsin's population, new medical treatments, and other technological innovations.

### Trade, Transportation, and Utilities is Second

Trade, transportation, and utilities, which includes jobs in the U.S. Postal Service, had just over 552,000 jobs in 2002. By 2012 this super-sector is expected to grow to over 627,000 jobs and account for nearly 1 out of every 5 positions in Wisconsin. Also, this super-sector is projected to add the second largest number of new jobs with slightly more than 75,000.

The bulk of employment is found in retail trade, which accounts for nearly six out of every ten jobs and over half of the new job creation. Strong consumer demand for a variety of products will keep employment growing. Furthermore customer desire for more convenient shopping venues will expand the number of jobs in nonstore retailers (electronic shopping and mail-order) and general merchandise stores.

## EMPLOYMENT BY SUPER-SECTOR (continued)



## EMPLOYMENT BY SUPER-SECTOR (continued)

### Manufacturing is Third, but Still Significant

With 18% of Wisconsin's employment in 2002, manufacturing had the third largest proportion of jobs. Although manufacturing will remain as the third largest super-sector in 2012, it will account for a smaller segment of state jobs with about 16% of the total.

Although manufacturing has lost jobs in recent years this sector is still expected to have about 8,600 more jobs in 2012 than in 2002. However, due to adjustments in industry coding that were made in 2003, it is difficult to precisely compare manufacturing employment in 2002 to subsequent years. The adjustments in industry coding involved shifting some employment that was previously recorded under manufacturing into other industries. This lack of data comparability through time is called a series break.

In 2002 manufacturing employment was 528,000 (prior to the series break). In 2004, employment was estimated to be just under 502,000 (after the series break). About 20,000 of this decline is due to an actual economic loss of manufacturing jobs. The remainder of the difference is due to changes in industry coding.

Between now and 2012, manufacturing jobs will continue to be challenged by ever-increasing interdependence and integration of global markets, mergers, automation, and other pressures to decrease costs. However, there are also positive signs for Wisconsin's manufacturing sector. In 2004 Wisconsin manufacturing exports reached a record level of \$12.4 billion, which was a 10.4% increase over the 2003 level. Also, during the last half of 2004 hiring in manufacturing improved. Overall, with all of the ups and downs manufacturing jobs will encounter during the ten year period, manufacturing is still expected to have more jobs than in 2012 than in 2002.

Forty percent of Wisconsin's manufacturing employment is found in just three sub-sectors - machinery manufacturing, fabricated metal product manufacturing, and food manufacturing. However, the sub-sector projected to add the most new jobs is plastics and rubber products manufacturing with about 7,100.

Manufacturing employment will also continue to be affected by the use of temporary workers. Temporary workers are often employees of a temporary help agency instead of a manufacturer. As a result some manufacturing employment is actually being shifted from manufacturing into professional and business services. In 2002, there were at least 12,000 temporary help services jobs in manufacturing. In 2012, the estimate is that there will be at least 17,000.

## LARGEST INDUSTRIES

In the following sections the focus is on the sub-sectors (3-digit NAICS) with the largest employment, adding the most new jobs, growing the fastest, and losing the most jobs.

Figure 1-3 lists the thirty Wisconsin industries expected to have the most jobs in 2012. In 2012, these industries are projected to have 2.5 million jobs or 74% of the total jobs in Wisconsin's economy.

The top three industries alone -- educational services (including state and local government employment); food services and drinking places; and administrative and support services -- are expected to account for 19% of total jobs in 2012. Moreover, these industries are expected to contribute 24% of the new jobs during the decade.

Educational services which includes elementary and secondary schools, technical schools, colleges and universities, and educational support services (such as consultants, guidance counseling, testing, and student exchange programs) is Wisconsin's dominant industry in terms of employment. This industry is projected to add over 38,000 jobs and grow to a level of nearly 294,000 jobs in 2012.

**Figure 1-3: Thirty Largest Industries, Ranked by 2012 Projected Employment**

Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
Educational Services, Including State/Local Gov <sup>(2)</sup>	255,290	293,700	38,410	15.0%
Food Services and Drinking Places	177,280	200,280	23,000	13.0%
Administrative and Support Services	113,020	147,730	34,710	30.7%
Local Government, Excluding Education/Hospitals <sup>(2)</sup>	130,020	135,000	4,980	3.8%
Ambulatory Health Care Services	95,160	133,100	37,940	39.9%
Hospitals, Including State/Local Government <sup>(2)</sup>	103,900	126,700	22,800	21.9%
Professional, Scientific, and Technical Services	89,350	112,970	23,620	26.4%
Specialty Trade Contractors	79,640	98,600	18,960	23.8%
Religious/Grant/Civic/Professional/Similar Orgs	84,110	91,200	7,090	8.4%
Nursing and Residential Care Facilities	67,900	89,700	21,800	32.1%
Social Assistance	54,090	75,600	21,510	39.8%
Machinery Manufacturing	72,740	74,700	1,960	2.7%
Merchant Wholesalers, Durable Goods	63,700	74,140	10,440	16.4%
Fabricated Metal Product Manufacturing	70,520	72,300	1,780	2.5%
Insurance Carriers and Related Activities	64,290	70,880	6,590	10.3%
Food Manufacturing	63,080	66,200	3,120	4.9%
Food and Beverage Stores	60,070	64,300	4,230	7.0%
General Merchandise Stores	58,890	64,300	5,410	9.2%
Credit Intermediation and Related Activities	51,810	58,440	6,630	12.8%
Truck Transportation	44,880	54,590	9,710	21.6%
Merchant Wholesalers, Nondurable Goods	44,750	48,130	3,380	7.6%
Motor Vehicle and Parts Dealers	39,360	43,170	3,810	9.7%
Paper Manufacturing	46,150	41,000	(5,150)	-11.2%
Plastics and Rubber Products Manufacturing	33,930	41,000	7,070	20.8%
Management of Companies and Enterprises	32,480	39,100	6,620	20.4%
Transportation Equipment Manufacturing	36,690	37,900	1,210	3.3%
State Government, Excluding Education/Hospitals	35,730	36,900	1,170	3.3%
Construction of Buildings	30,990	36,600	5,610	18.1%
Printing and Related Support Activities	34,720	35,500	780	2.2%
Accommodation	29,980	34,200	4,220	14.1%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

(2) Local government employment includes tribal owned operations.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

## **LARGEST INDUSTRIES (continued)**

Within educational services, the occupations expected to have the most job openings are postsecondary teachers (especially health specialties and vocational education teachers), secondary school teachers, elementary school teachers, and teacher assistants.

Educational services continues to face conflicting demands to provide more specialized services and yet to restrain employment growth and budgets. Elementary, middle, and secondary schools face pressure to decrease class sizes, offer more services to students with special needs, and educate an increasingly diverse student population. Technical schools, colleges, and universities have increased demand for classes from both traditional students and older adults seeking to upgrade their knowledge and skills. At the same time, schools at all levels are facing financial constraints which are forcing them to decide which services and classes to provide and which to eliminate.

The number of jobs in the food services and drinking places sub-sector is expected to exceed 200,000 in 2012. Expansion in this industry continues to be driven by population and tourism growth, and people preparing fewer meals at home. The occupations projected to have the most openings are waiters/waitresses, combined food preparation and serving workers, and bartenders.

Businesses in administrative and support services assist other organizations with their day-to-day operations or by providing functions such as billing, temporary workers, janitorial services, security services, and telemarketing. While Wisconsin's fourth largest industry in 2002 with about 113,000 jobs, this industry is expected to move into third place in 2012 with almost 148,000 positions.

Most of this industry's growth is anticipated in temporary help services as businesses seek to keep their core workforces as lean as possible. Temporary workers are used to supplement a firm's staff when there is a short-term need for more workers. Demand for other services will remain strong as well, as organizations continue to re-define or limit their core operations and outsource other functions. The occupations expected to add the most new jobs are janitors, general office clerks, and security guards.

## **INDUSTRIES ADDING THE MOST NEW JOBS**

The thirty industries creating the most new jobs are illustrated in figure 1-4. Almost all (92%) of Wisconsin's new job creation will occur among these industries. The top ten industries alone are expected to generate almost two out of every three of the state's new jobs.

Educational services, ambulatory health care services, and administrative and support services will lead the way. These three industries are projected to add nearly 111,100 positions.

Educational services and administrative and support services are also Wisconsin's largest and third largest employers overall. Please refer to the previous section on largest industries for more information about these two sub-sectors.

Ambulatory health care services includes doctors' and dentists' offices, outpatient surgical centers and clinics, medical laboratories, home health care services, ambulance services, and blood banks. This industry is expected to add nearly 38,000 jobs between 2002 and 2012. This sub-sector is also Wisconsin's fifth largest employer overall and its second fastest growing industry. The occupations with the most new jobs will be registered nurses, medical assistants, and dental assistants.

Employment in ambulatory health care services is growing due to the health care needs of Wisconsin's aging population and the shift from performing surgeries and other procedures at hospitals to outpatient centers. In addition, both shortened hospital stays and outpatient surgeries are increasing the need for home health services as people continue to recover from illness or surgery at home.



**Figure 1-4: Thirty Industries Adding the Most New Jobs, 2002 to 2012**

Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
Educational Services, Including State/Local Gov <sup>(2)</sup>	255,290	293,700	38,410	15.0%
Ambulatory Health Care Services	95,160	133,100	37,940	39.9%
Administrative and Support Services	113,020	147,730	34,710	30.7%
Professional, Scientific, and Technical Services	89,350	112,970	23,620	26.4%
Food Services and Drinking Places	177,280	200,280	23,000	13.0%
Hospitals, Including State/Local Government <sup>(2)</sup>	103,900	126,700	22,800	21.9%
Nursing and Residential Care Facilities	67,900	89,700	21,800	32.1%
Social Assistance	54,090	75,600	21,510	39.8%
Specialty Trade Contractors	79,640	98,600	18,960	23.8%
Merchant Wholesalers, Durable Goods	63,700	74,140	10,440	16.4%
Truck Transportation	44,880	54,590	9,710	21.6%
Nonstore Retailers	24,480	32,250	7,770	31.7%
Religious/Grant/Civic/Professional/Similar Orgs	84,110	91,200	7,090	8.4%
Plastics and Rubber Products Manufacturing	33,930	41,000	7,070	20.8%
Credit Intermediation and Related Activities	51,810	58,440	6,630	12.8%
Management of Companies and Enterprises	32,480	39,100	6,620	20.4%
Insurance Carriers and Related Activities	64,290	70,880	6,590	10.3%
Personal and Laundry Services	25,820	31,480	5,660	21.9%
Construction of Buildings	30,990	36,600	5,610	18.1%
General Merchandise Stores	58,890	64,300	5,410	9.2%
Miscellaneous Store Retailers	19,170	24,220	5,050	26.3%
Local Government, Excluding Education/Hospitals <sup>(2)</sup>	130,020	135,000	4,980	3.8%
Building Material/Garden Equipment/Supplies	26,980	31,760	4,780	17.7%
Transit and Ground Passenger Transport	12,750	17,020	4,270	33.5%
Food and Beverage Stores	60,070	64,300	4,230	7.0%
Accommodation	29,980	34,200	4,220	14.1%
Amusement, Gambling, and Recreation Industries	25,070	29,190	4,120	16.4%
Motor Vehicle and Parts Dealers	39,360	43,170	3,810	9.7%
Couriers and Messengers	8,760	12,520	3,760	42.9%
Repair and Maintenance	22,310	25,950	3,640	16.3%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

(2) Local government employment includes tribal owned operations.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development



## FASTEST GROWING INDUSTRIES

Wisconsin's fastest growing industries are listed in figure 1-5. The rank of each industry is based on percentage increases in employment between 2002 and 2012. The larger the percentage increase, the faster the industry is growing. To avoid highlighting industries with large percentage increases in employment yet few actual job opportunities, only industries with projected 2012 employment of at least 500 are included in the list.

As a whole, these thirty fastest growing industries are projected to create 71%, or over 281,000, of the state's new jobs. Also, by 2012 jobs in these industries will comprise 40% of Wisconsin's employment. The three fastest growing industries are couriers and messengers; ambulatory health care services; and social assistance. (Ambulatory health care services employment is reviewed in the section on industries adding the most new jobs.)

Businesses in the couriers and messengers sub-sector provide intercity and/or local delivery of packages that can be handled by one person without using special equipment. In route to their destination, these parcels may be transported via air or ground. In Wisconsin, this sub-sector is dominated by companies that deliver products to households and businesses. These products are often ordered via mail, telephone, or internet. As Wisconsin's economy, population, and consumer demand expands, so will the volume of goods and other items that must be delivered.

With a growth rate of nearly 43%, this sub-sector is expected to add just under 4,000 jobs during the decade. The occupations expected to have the most new jobs are light truck drivers (vehicles with a capacity of under 26,000 GVW), manual movers of freight, and heavy truck drivers (vehicles with a capacity of at least 26,000 GVW).

Social assistance is the Wisconsin's third fastest growing industry. Organizations within this sub-sector provide a wide array of counseling and other social services for children, adults, and families. These services include community meal programs, temporary shelter, disaster relief, vocational rehabilitation, and child care. This sub-sector is expected to add almost 22,000 jobs for a growth rate of nearly 40%. Personal and home care aides, preschool teachers and child care workers are the occupations projected to have the most new jobs.

Employment in social assistance is expanding particularly in the areas of elderly services, child care, and vocational rehabilitation. Elderly services are expanding due to increases in this population, the efforts being made to help people remain in their own homes, and the reduced hospital time people are given to recover from illness or surgery. Child care needs are growing due to more women, who have infants and young children, working outside of the home. Employment is rising in vocational rehabilitation services because state and local governments, in an effort to decrease their own payrolls and costs, are contracting with the private sector to provide job counseling and training to the unemployed and underemployed.

## DECLINING INDUSTRIES

Wisconsin has twenty-one sub-sectors expected to experience a decline in employment between 2002 and 2012 (refer to figure 1-6). Overall these industries are projected to lose about 15,000 jobs. Twelve of the industries are in manufacturing, while the other industries are scattered among several different super-sectors.

The sub-sector expected to lose the most jobs is paper manufacturing with a net decline of about 5,200 jobs. Since 1998, employment in this sub-sector has decreased every year. However, with the exception of 2001, the value of exports has risen each year. Due to increasing global competition, and in order to sustain its customer base, this industry will need to continue investing in new machinery and other technologies. In addition, this industry will continue to seek ways to decrease labor costs.

Apparel manufacturing is projected to encounter the fastest employment decline. Between 2002 and 2012 this sub-sector is expected to lose 63% of its employment as the number of jobs fall from 2,330 to 870. Changing trade regulations and stepped-up competition from China are the major challenges facing this industry.

**Figure 1-5: Thirty Fastest Growing Industries<sup>(1)</sup>, 2002 to 2012**

Industry Title	2002 Estimated Employment <sup>(2)</sup>	2012 Projected Employment <sup>(2)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
Couriers and Messengers	8,760	12,520	3,760	42.9%
Ambulatory Health Care Services	95,160	133,100	37,940	39.9%
Social Assistance	54,090	75,600	21,510	39.8%
Internet/Web Search/Data Processing Services	9,000	12,140	3,140	34.9%
Electronics and Appliance Stores	8,330	11,150	2,820	33.9%
Transit and Ground Passenger Transport	12,750	17,020	4,270	33.5%
Nursing and Residential Care Facilities	67,900	89,700	21,800	32.1%
Nonstore Retailers	24,480	32,250	7,770	31.7%
Administrative and Support Services	113,020	147,730	34,710	30.7%
Warehousing and Storage	11,790	15,290	3,500	29.7%
Waste Management and Remediation Service	4,950	6,330	1,380	27.9%
Rental and Leasing Services	8,960	11,400	2,440	27.2%
Professional, Scientific, and Technical Services	89,350	112,970	23,620	26.4%
Miscellaneous Store Retailers	19,170	24,220	5,050	26.3%
Support Activities for Transportation	4,090	5,100	1,010	24.7%
Specialty Trade Contractors	79,640	98,600	18,960	23.8%
Hospitals, Including State and Local Government <sup>(3)</sup>	103,900	126,700	22,800	21.9%
Personal and Laundry Services	25,820	31,480	5,660	21.9%
Truck Transportation	44,880	54,590	9,710	21.6%
Motion Picture and Sound Recording Industries	4,110	4,970	860	20.9%
Plastics and Rubber Products Manufacturing	33,930	41,000	7,070	20.8%
Securities/Commodity/Financial Investments	9,640	11,610	1,970	20.4%
Management of Companies and Enterprises	32,480	39,100	6,620	20.4%
Sporting Goods, Hobby, Book, and Music Stores	12,790	15,320	2,530	19.8%
Furniture and Home Furnishings Stores	10,030	11,920	1,890	18.8%
Construction of Buildings	30,990	36,600	5,610	18.1%
Building Material/Garden Equipment/Supplies	26,980	31,760	4,780	17.7%
Amusement, Gambling, and Recreation Industries	25,070	29,190	4,120	16.4%
Merchant Wholesalers, Durable Goods	63,700	74,140	10,440	16.4%
Repair and Maintenance	22,310	25,950	3,640	16.3%

**Notes:**

- (1) Only industries with projected 2012 employment of 500 or more are included.  
 (2) Employment is rounded to the nearest ten. Numbers may not add due to rounding.  
 (3) Local government employment includes tribal owned operations.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.  
 Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

Figure 1-6: Industries with Declining Employment, 2002 to 2012

Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
Paper Manufacturing	46,150	41,000	(5,150)	-11.2%
Apparel Manufacturing	2,330	870	(1,460)	-62.7%
Utilities	11,700	10,400	(1,300)	-11.1%
Primary Metal Manufacturing	20,930	19,900	(1,030)	-4.9%
Computer and Electronic Product Manufacturing	23,750	22,900	(850)	-3.6%
Leather and Allied Product Manufacturing	2,320	1,690	(630)	-27.2%
Textile Mills	1,360	740	(620)	-45.6%
Clothing and Clothing Accessories Stores	18,260	17,660	(600)	-3.3%
U.S. Postal Service	15,410	14,850	(560)	-3.6%
Chemical Manufacturing	14,670	14,190	(480)	-3.3%
Miscellaneous Manufacturing	17,030	16,650	(380)	-2.2%
Broadcasting (except Internet)	5,010	4,650	(360)	-7.2%
Private Households	5,620	5,270	(350)	-6.2%
Rail Transportation	3,730	3,400	(330)	-8.8%
Electrical Equipment/Appliance/Component Mfg	27,150	26,900	(250)	-0.9%
Textile Product Mills	2,610	2,400	(210)	-8.0%
Beverage and Tobacco Product Manufacturing	2,930	2,740	(190)	-6.5%
Telecommunications	14,670	14,580	(90)	-0.6%
Federal Government, Excluding U.S. Postal Service	14,490	14,400	(90)	-0.6%
Petroleum and Coal Products Manufacturing	430	370	(60)	-14.0%
Publishing Industries	18,180	18,140	(40)	-0.2%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

## SPOTLIGHT ON SELECTED INDUSTRIES

This section provides a closer look at the following industry groups:

- Construction
- Plastics and Rubber Products Manufacturing
- Fabricated Metal Product Manufacturing
- Machinery Manufacturing
- Wholesale Trade
- Truck Transportation
- Professional, Scientific, and Technical Services
- Administrative and Support Services
- Educational Services
- Health Care Services

These industries were chosen because they are major sources of employment in Wisconsin and/or because they are anticipated to add several new jobs between 2002 and 2012. For each of these industries there is (1) a definition of the industry; (2) an examination of past, present, and projected employment; (3) a brief analysis of the factors affecting employment; and (4) a list of the occupations expected to have the most new jobs.

## Construction, NAICS 23

Construction Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
107,400	124,130	150,700	26,570	21.4%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

The construction sector includes residential and commercial building construction; road, bridge, and utility system construction; and specialty trade contractors such as framing, roofing, or electrical contractors.

Nearly two-thirds of Wisconsin's construction employment is among specialty trade contractors. Construction of buildings accounts for 25% of employment. Heavy and civil engineering construction comprises the remaining 11%.

### Past, Present, and Future Employment

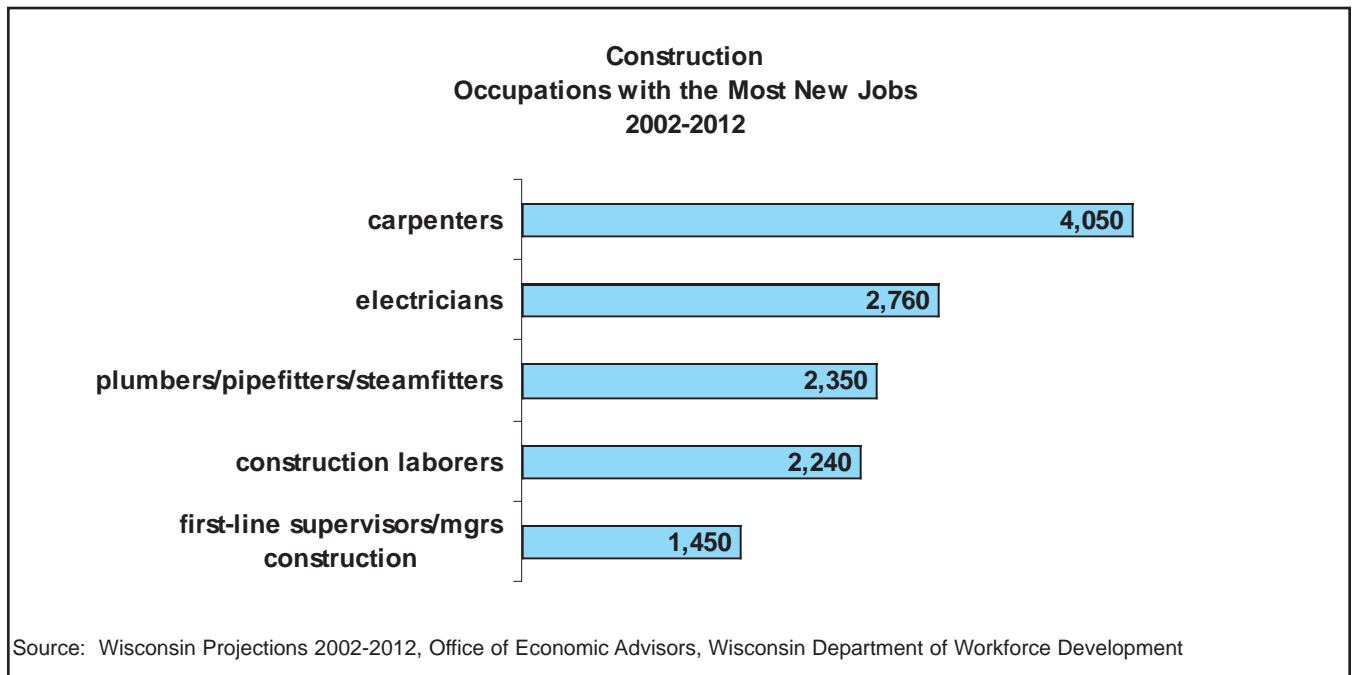
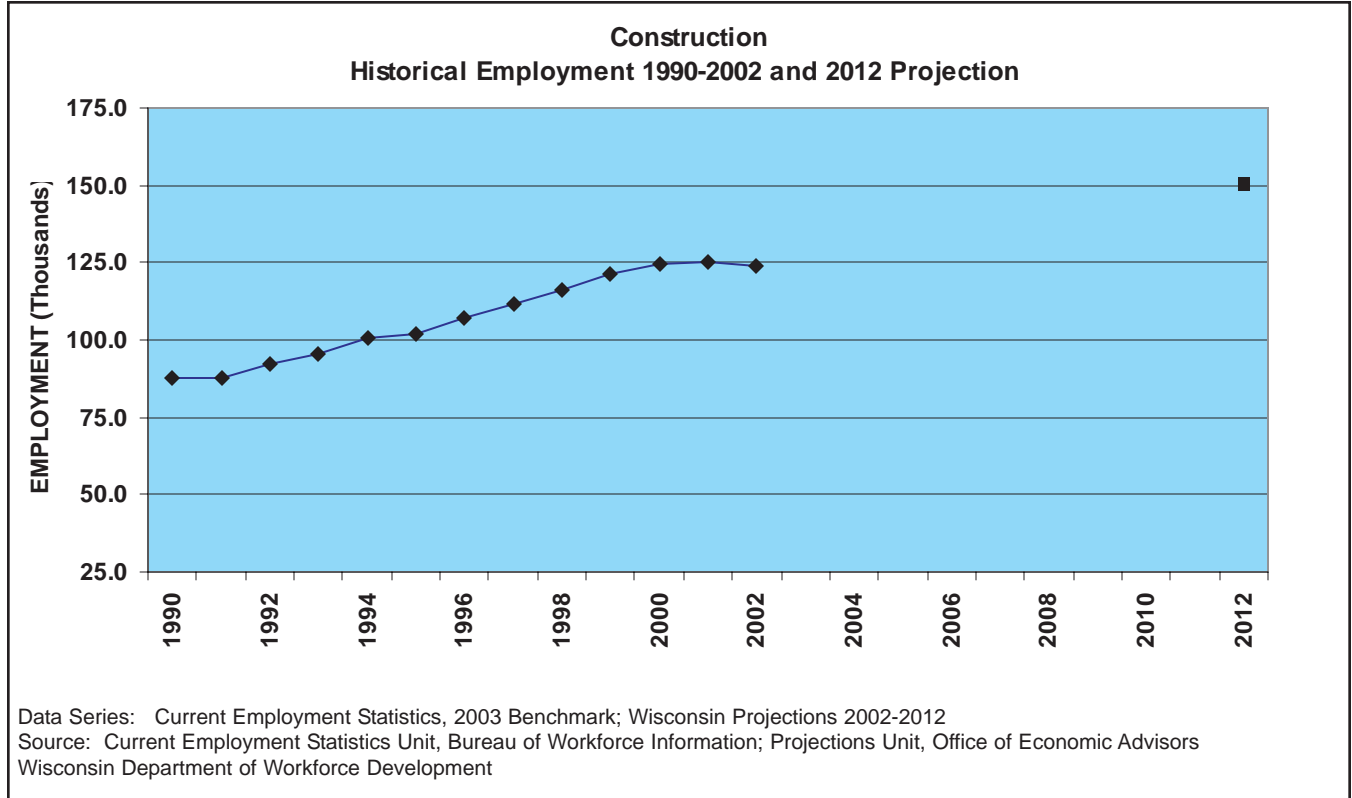
From 1990 through 2001, construction employment steadily increased. During this time the number of jobs rose from 87,900 to 125,400. Although employment dipped in 2002 and 2003, job growth resumed in 2004 and surpassed 126,000. Expansion in this industry is expected to continue, with employment reaching nearly 151,000 in 2012.

### Factors Affecting Employment

In the coming years, the factor likely to have the greatest impact on construction of new buildings is growth in Wisconsin's population aged 55 and over. Many people will seek to move from their single-family homes into condominiums and apartments. This will boost construction of new multi-unit dwellings targeting seniors. In turn, the construction of these new living quarters will spur the construction of new retail establishments and restaurants near the condos and apartments. Other people who become too ill or disabled to live independently will move into assisted living facilities, nursing homes, and hospice centers. As a result, more of these facilities will also be constructed. In addition, to meet the general health care needs of the aging population more medical clinics and outpatient care centers will be built.

As seniors vacate their single-family homes, and younger people move in, the demand for specialty trade contractors will increase. Some homes may need new roofs and windows. Others may need new electrical and heating/air conditioning systems. Others may need garage, bedroom, and/or family room additions in order to accommodate the desires of their new owners.

Employment in heavy and civil engineering construction will be impacted by the Marquette Interchange Project that is scheduled between 2004 and 2008. In addition, if pending utility construction plans are approved in Milwaukee County and in other parts of the state, workers will be needed for these projects as well.



## Plastics and Rubber Products Manufacturing, NAICS 326

Plastics and Rubber Products Manufacturing Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
32,100	33,930	41,000	7,070	20.8%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Businesses in this industry make goods by processing plastics materials and raw rubber. About 93% of employment is concentrated in firms making plastic products. These firms make plastic bags, packaging film and sheets, pipes and pipe fittings, foam products, and other items. The 7% of businesses producing rubber items include tire retreading, rubber parts for mechanical uses, and other miscellaneous products.

Among manufacturing industries, plastics and rubber products is projected to add the most new jobs and to be the fastest growing segment of the super-sector.

### Past, Present, and Future Employment

Although this industry is relatively small, it has been a strong performer in Wisconsin's economy. Between 1990 and 2000 this industry grew nearly 40% from 27,200 to 37,900 jobs. During the same period Wisconsin's total employment grew 23% and manufacturing increased 14% .

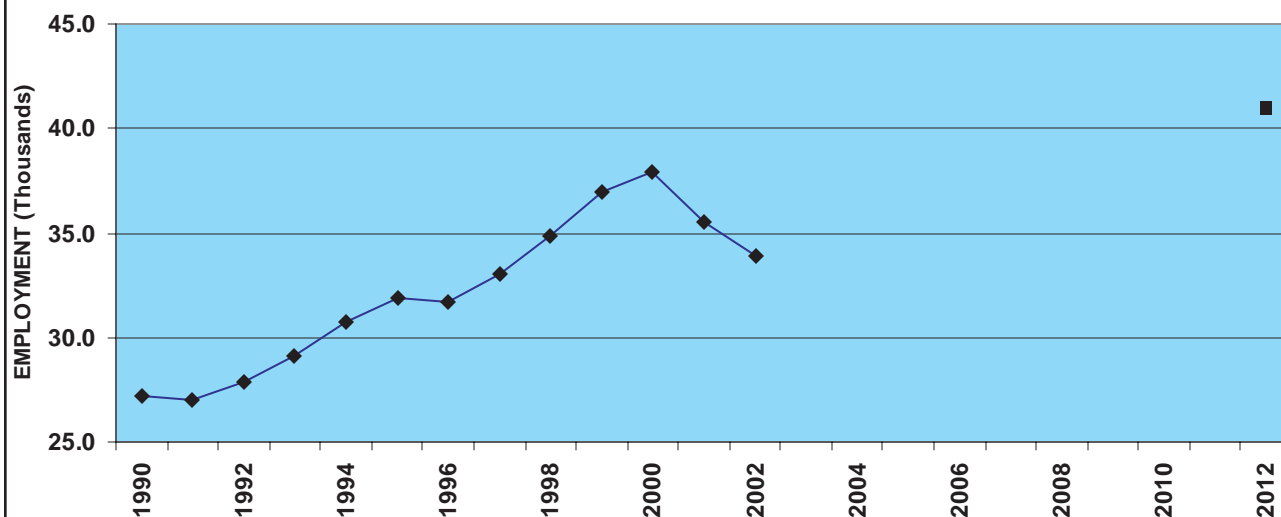
Despite a loss of 4,800 positions between 2000 and 2003, employment began rising in 2004. From 2002 to 2012, the industry is once again expected to grow at faster than the Wisconsin average and reach 41,000 jobs.

### Factors Affecting Employment

Employment growth in this industry will be driven by on-going substitution of plastic for metal parts in all types of items. For example, automobiles, home appliances, computers, etc. are being made with more plastic parts. In addition plastic is replacing paper-, glass-, and metal-based packaging and containers.

This industry will continue to implement computer-controlled machinery which will eliminate some positions. Also, the industry will likely face increased international competition. However, due to strong world-wide demand Wisconsin employment is expected to increase over the 2002-2012 period.

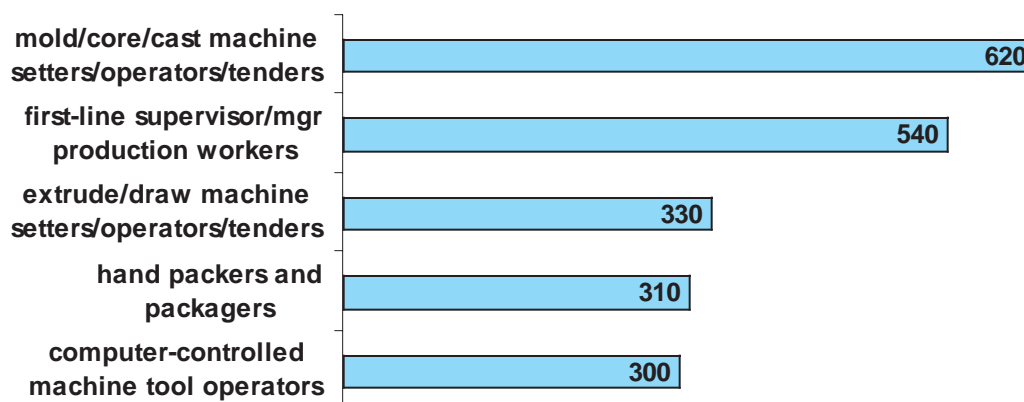
**Plastics and Rubber Products Manufacturing  
Historical Employment 1990-2002 and 2012 Projection**



Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012

Source: Current Employment Statistics Unit, Bureau of Workforce Information; Projections Unit, Office of Economic Advisors  
Wisconsin Department of Workforce Development

**Plastics and Rubber Products  
Occupations with the Most New Jobs  
2002-2012**



Source: Wisconsin Projections 2002-2012, Office of Economic Advisors, Wisconsin Department of Workforce Development



## Fabricated Metal Products, NAICS 332

Fabricated Metal Products Employment Outlook					
Average Employment 1990-2002	Estimated Employment 2002	Projected Employment 2012	New Jobs 2002-2012	% Change for this Industry 2002-2012	% Change Across all Industries 2002-2012
72,700	70,520	72,300	1,780	2.5%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

The fabricated metal products industry is Wisconsin's second largest manufacturing employer. Businesses in the fabricated metal products industry transform metal into intermediate or end products using forging, stamping, machining, welding, and assembling.

Examples of products manufactured in this industry are iron and steel forgings; metal stampings; cutlery and flatware; hand and edge tools; prefabricated metal buildings; plate work; windows and doors; cans; hardware; and made-to-order machined metal parts.

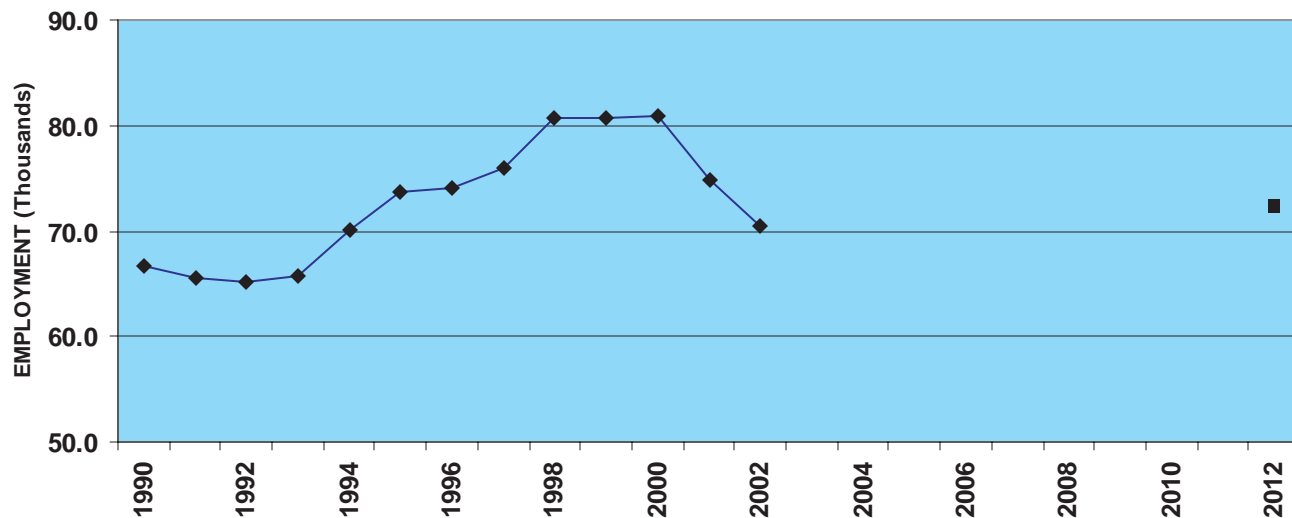
### Past, Present, and Future Employment

From 1990 through 2000 fabricated metal products employment increased from 66,600 jobs to a peak of 80,900. In 2001 employment began to decline and the number jobs dropped to 68,400 in 2003. However, employment began growing again in 2004 and reached a level of 69,200. In 2012, the number of jobs are expected to be around 72,300.

### Factors Affecting Employment

Employment in this industry is affected by a number of factors. Some segments of the industry are being adversely affected by the substitution of plastic for metal products. Other sectors are closely tied to the construction industry and will continue to do well as long as demand for new construction and remodeling remains strong. Still other sectors are squeezed by increasing international competition and pressures to decrease costs. In addition, all of the sectors are seeking to reduce labor costs through incorporating new technologies and production processes. The net effect of these factors will be a dampening of employment growth during the 2002-2012 period.

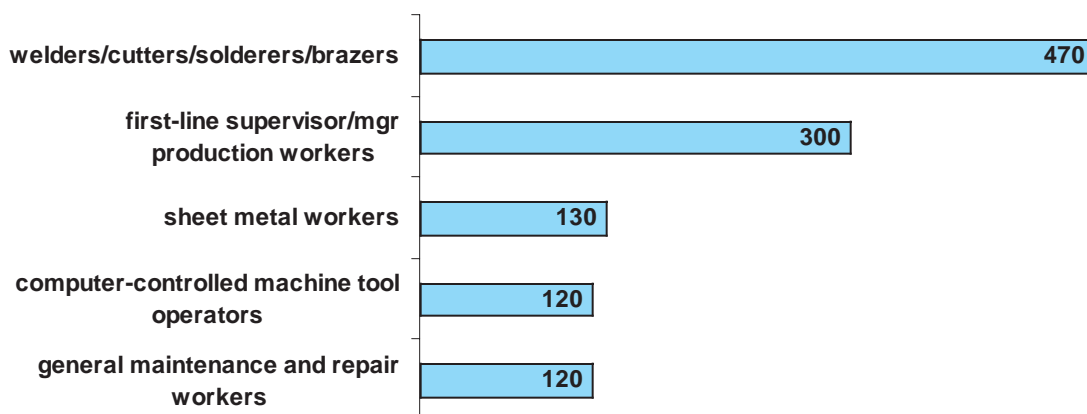
**Fabricated Metal Product Manufacturing  
Historical Employment 1990-2002 and 2012 Projection**



Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012

Source: Current Employment Statistics Unit, Bureau of Workforce Information; Projections Unit, Office of Economic Advisors  
Wisconsin Department of Workforce Development

**Fabricated Metal Products  
Occupations with the Most New Jobs  
2002-2012**



Source: Wisconsin Projections 2002-2012, Office of Economic Advisors, Wisconsin Department of Workforce Development

## Machinery Manufacturing, NAICS 333

Machinery Manufacturing Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
82,600	72,740	74,700	1,960	2.7%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Machinery manufacturing is Wisconsin's largest manufacturing industry. Firms in this industry make machines that apply mechanical force. While machines produced in this industry are made for both business and household consumers, many of the machines are used by businesses to make their own products.

Some examples of products made in this industry are milking machines, lawn and garden tractors, pulp making machinery, printing presses, mining machinery, cranes, and metalworking machinery.

### Past, Present, and Future Employment

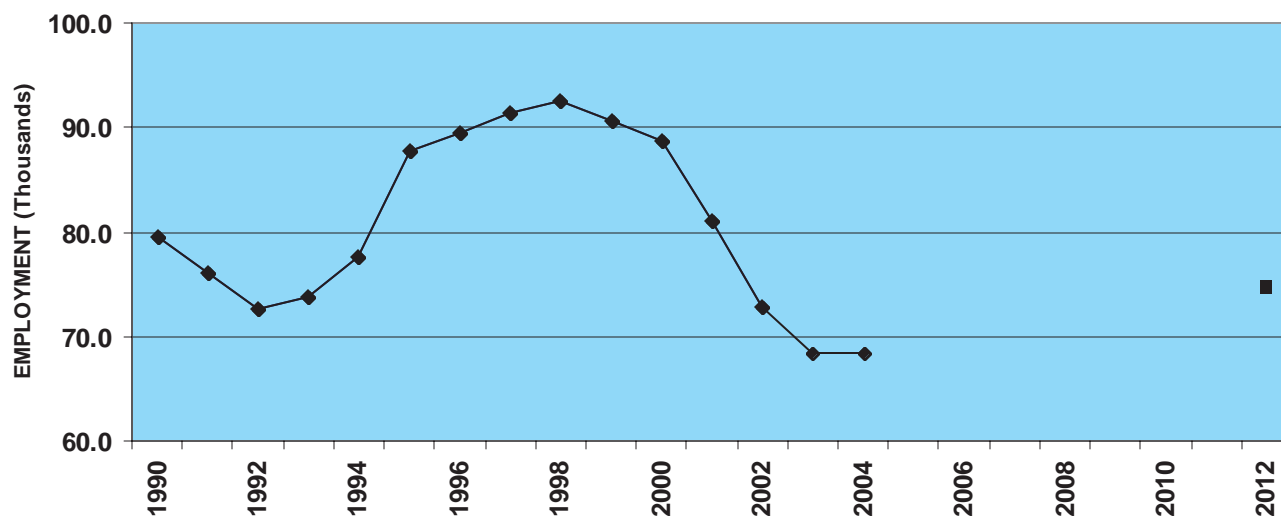
Employment in this industry is characterized by a repeating pattern of years of employment decreases followed by years of increases. Since 1998, when there were nearly 93,000 jobs, employment has once again been falling. In 2004, employment dropped to just under 69,000 positions. Employment is expected to rebound slightly and reach a level of about 75,000 jobs in 2012.

### Factors Affecting Employment

Most of the machinery produced in this industry is used by other industries to manufacture their own products. Consequently, employment in machinery manufacturing is directly related to other industry demand for new machinery. In turn, each industry's demand is related to that industry's profits, interest rates, availability of credit, degree of consolidations and mergers, age of existing equipment, and demand for their own products. In short, the machinery manufacturing industry benefits when other industries are doing well and are buying new manufacturing equipment.

In addition the machinery manufacturing industry itself has been consolidating, globalizing, and incorporating new technologies into its manufacturing processes. As a result, there has been, and will continue to be, downward pressure on employment.

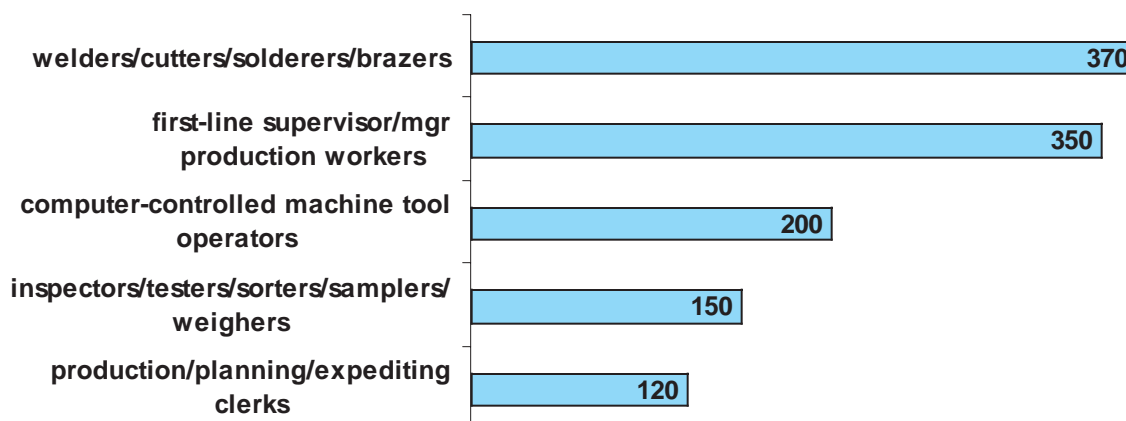
**Machinery Manufacturing**  
**Historical Employment 1990-2002 and 2012 Projection**



Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012

Source: Current Employment Statistics Unit, Bureau of Workforce Information; Projection Unit, Office of Economic Advisors  
 Wisconsin Department of Workforce Development

**Machinery Manufacturing**  
**Occupations with the Most New Jobs**  
**2002-2012**



Source: Wisconsin Projections 2002-2012, Office of Economic Advisors, Wisconsin Department of Workforce Development

## Wholesale Trade, NAICS 42

Wholesale Trade Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
105,000	114,200	128,800	14,600	12.8%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Wholesale businesses sell, or arrange the purchase or sale of (1) products that will in turn be sold to others; (2) machinery and other products for business use only; and (3) raw and intermediate materials that are used to make final products.

Wholesalers are divided among firms that sell durable goods (which are products that last at least three years), those that sell nondurable goods (which last less than three years), and agents and brokers that arrange sales and purchases for others. Durable goods wholesalers account for 56% of this sector's jobs while nondurable wholesalers account for 39%. Agents and brokers make up 5% of employment.

### Past, Present, and Future Employment

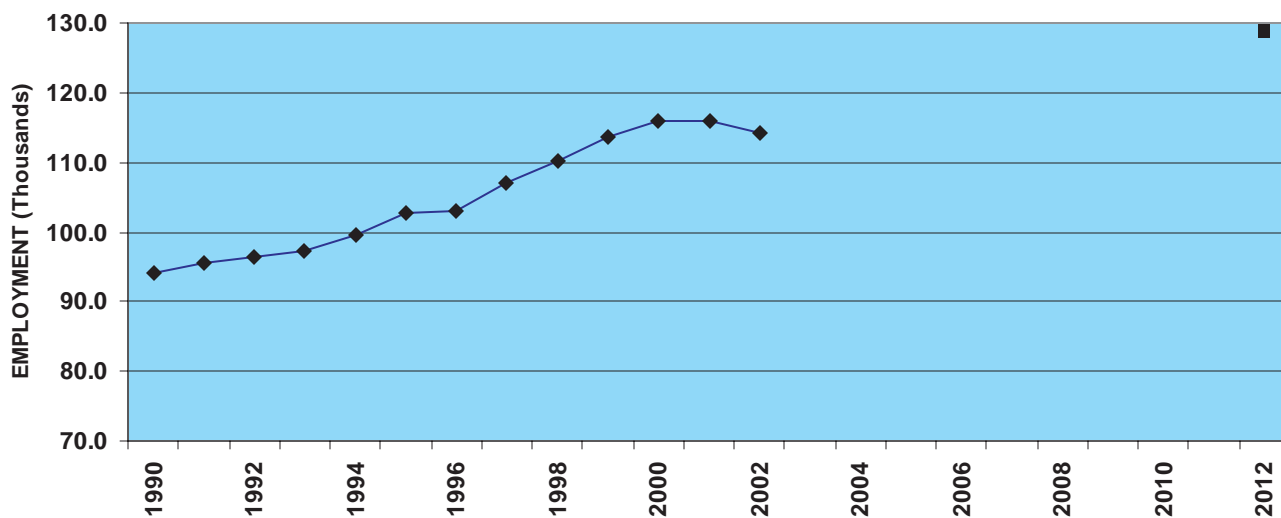
In 1990 wholesale trade had 94,200 jobs. In 2000, the sector had 116,000 positions. Between 2001 and 2003 employment dipped to a level of 113,000. However, employment is expected to rebound. In 2012, this sector is projected to have 128,800 jobs.

### Factors Affecting Employment

Like many industries, wholesale trade is experiencing consolidation due to globalization and cost pressures, and is implementing labor-saving technologies. The combined effect of these factors is decreased employment. However, growth in both business and household demand for a wide variety of products tends to boost employment. During the 2002-2012 period, growth in product demand is expected to have a larger effect on employment than the pressures to decrease workers. As a result, overall employment in wholesale trade will grow during the period.

Robust growth in the health care sector will increase demand for wholesale medical equipment and supplies. Continued construction of new buildings and homes, and remodeling, will support demand for electrical and electronic goods. Upgrading of machinery in factories, janitorial work in new and existing buildings, and growth in hair care salons will keep demand solid for machinery, equipment, and supplies wholesalers. As people continue to eat meals prepared outside of their homes, demand from restaurants and grocery stores for wholesale food products will also remain strong.

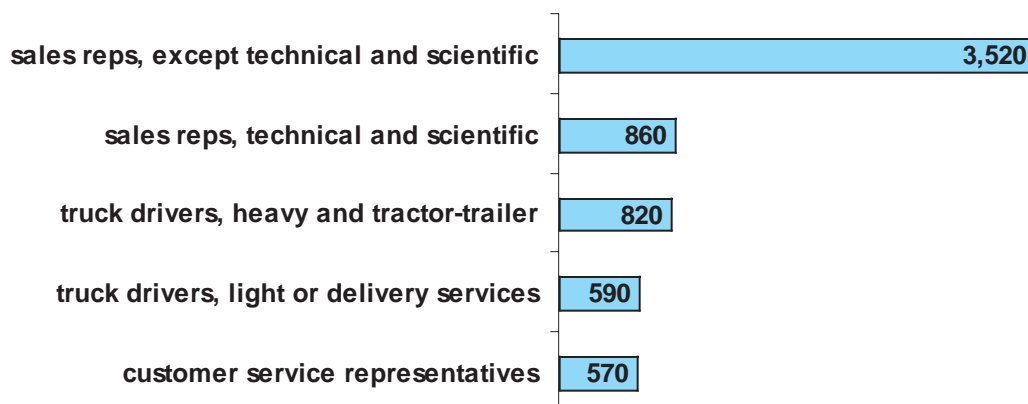
**Wholesale Trade**  
**Historical Employment 1990-2002 and 2012 Projection**



Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012

Source: Current Employment Statistics Unit, Bureau of Workforce Information; Projections Unit, Office of Economic Advisors  
 Wisconsin Department of Workforce Development

**Wholesale Trade**  
**Occupations with the Most New Jobs**  
**2002-2012**



Source: Wisconsin Projections 2002-2012, Office of Economic Advisors, Wisconsin Department of Workforce Development

## Truck Transportation, NAICS 484

Truck Transportation Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
41,700	44,880	54,590	9,710	21.6%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Companies in the truck transportation industry use trucks and tractor trailers to move cargo between destinations.

In Wisconsin, truck transportation employment is concentrated in firms that do long-distance general freight trucking. Nearly six out of every ten jobs are in this area. These businesses handle a wide variety of goods and travel from Wisconsin to destinations all over North America.

The next largest segment, with 14% of jobs, is local specialized freight trucking. These businesses move goods that require a special kind of truck or trailer (such as a dump truck, tanker truck, or a livestock hauler). In addition, the trips are usually same-day return.

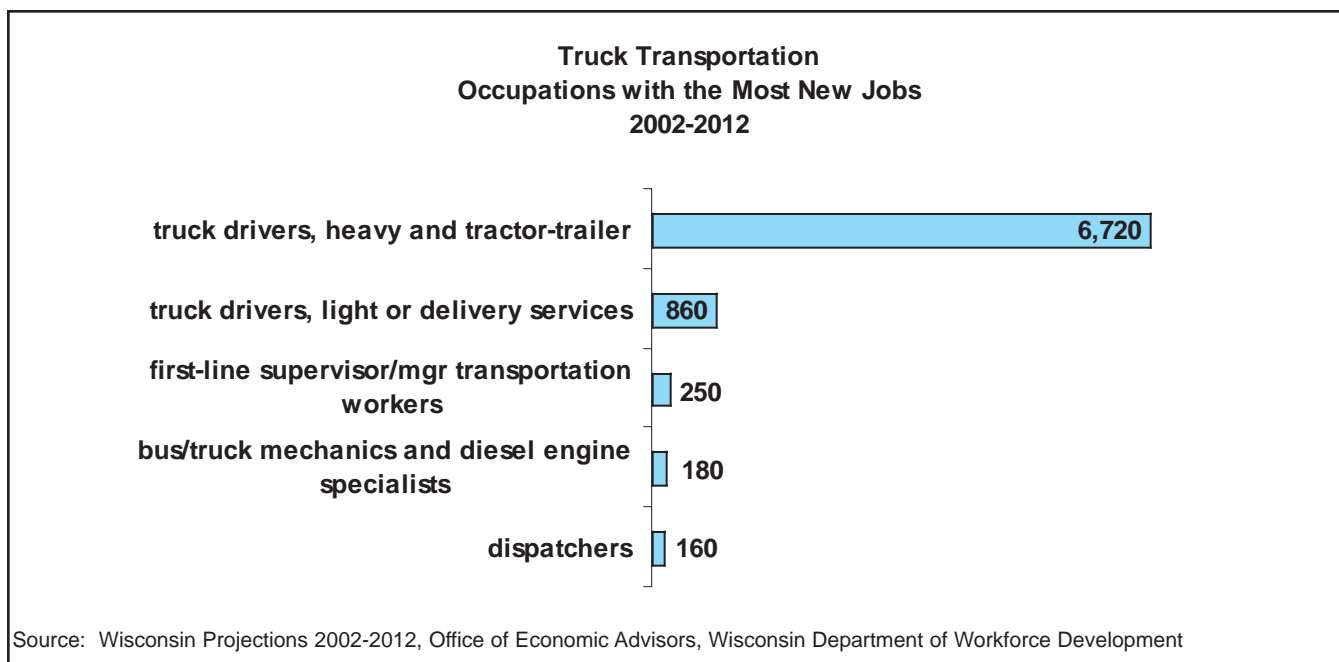
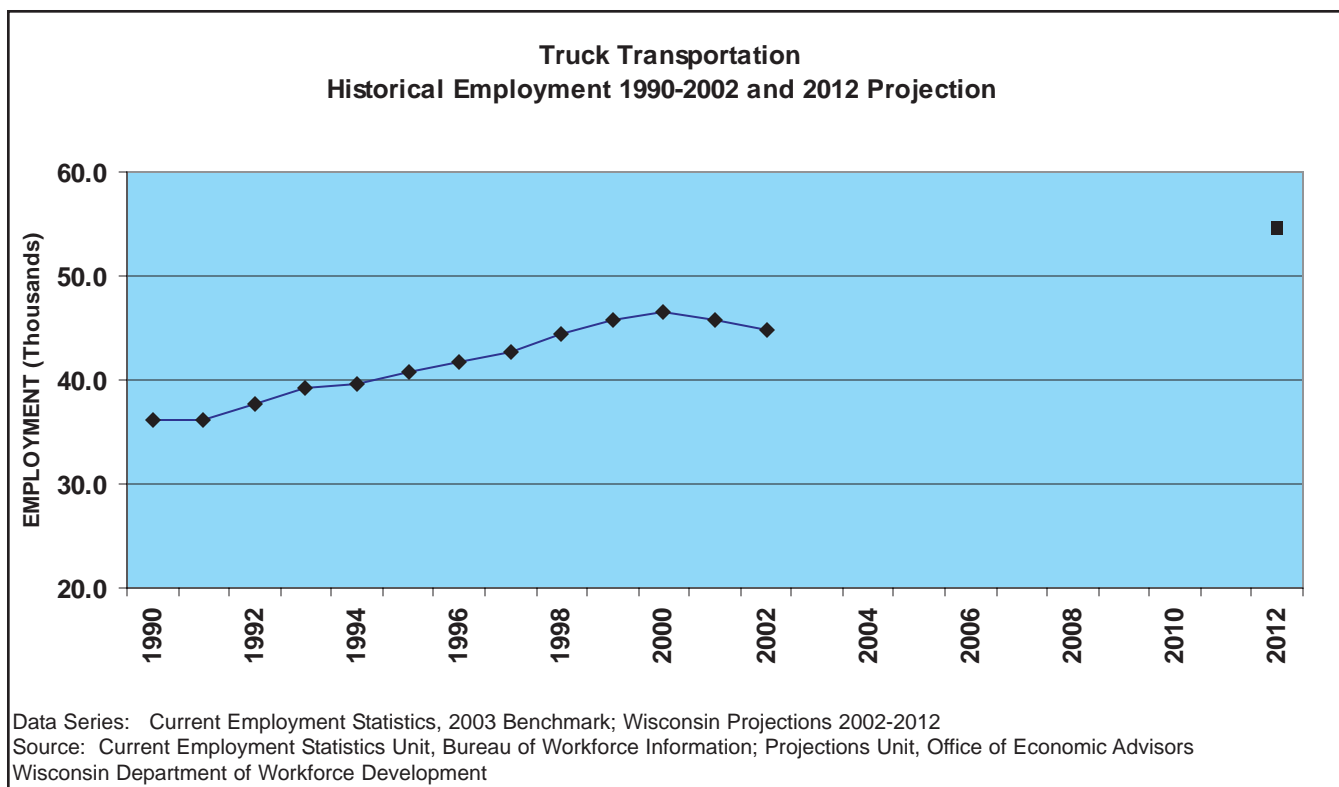
### Past, Present, and Future Employment

In 1990, truck transportation had 36,100 jobs. In 2000, employment reached 46,600. Employment dipped in 2001 and 2002 and then began climbing again in 2003. Employment in 2004 was just 400 jobs less than the 2000 level. Employment is expected to continue growing and reach a level of 54,600 jobs in 2012.

### Factors Affecting Employment

Employment in this industry is sensitive to the ups and downs of the U.S. economy overall. As demand for goods increases or decreases, so does the need for employees in truck transportation. The industry is also consolidating and looking for ways to decrease its workforce through the use of new technology.

Between now and 2012, business and household consumption is expected to recover, and therefore increased product demand will have a positive affect on truck transportation employment. In addition, jobs are being positively affected by increased demand for logistics services. In order to focus on their core business, manufacturers are outsourcing product distribution functions to trucking companies. Also, the on-going use of just-in-time inventory management by manufacturers, wholesalers, and retailers will sustain the frequency of shipments.





## Professional, Scientific, and Technical Services, NAICS 54

Professional, Scientific, and Technical Services Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
76,500	89,350	112,970	23,620	26.4%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Businesses in the professional, scientific, and technical services sector specialize in activities that require a high degree of expertise and training. Examples of the types of services provided are: legal; accounting; computer systems design; architectural and engineering; consulting; research; advertising; and veterinary.

In 2002 the largest employment groups were (1) architectural, engineering, and related services with 21% of the jobs; (2) legal services with 18%; and (3) computer systems design and related services with 16%. By 2012, computer systems design is expected to move into first place with 19% of employment. Legal services will remain second with 16.9% and just edge out architectural, engineering, and related services with 16.8% of the jobs.

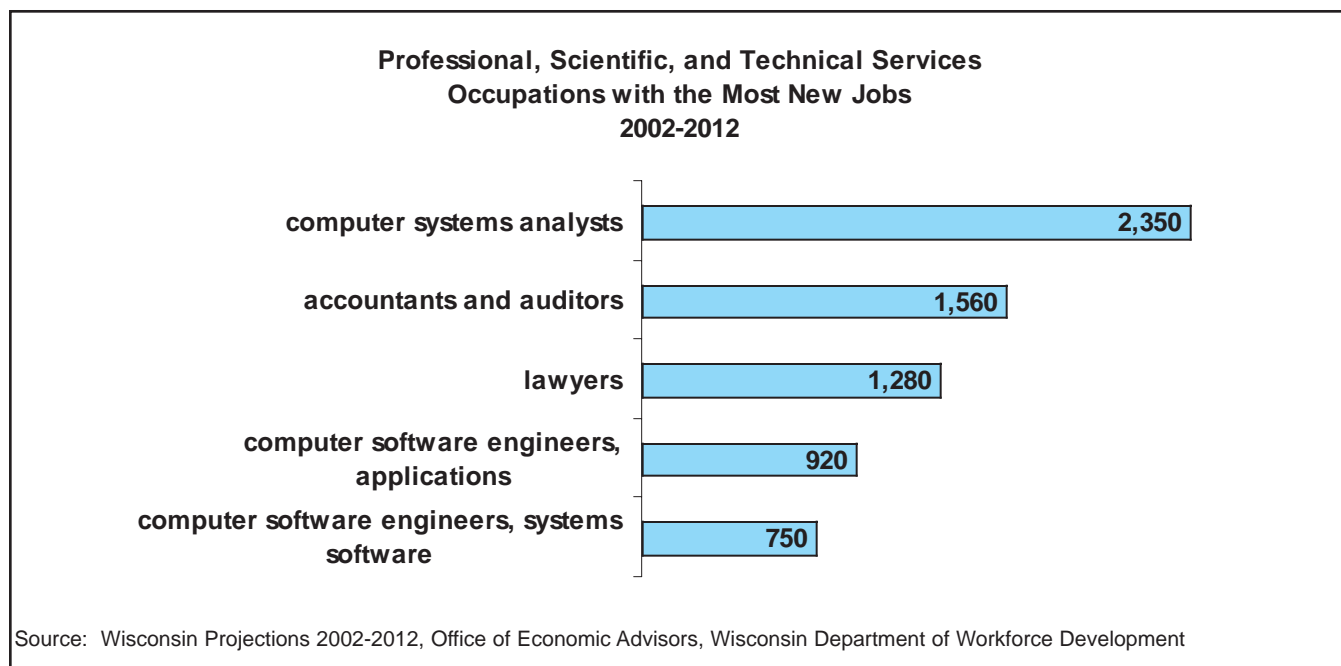
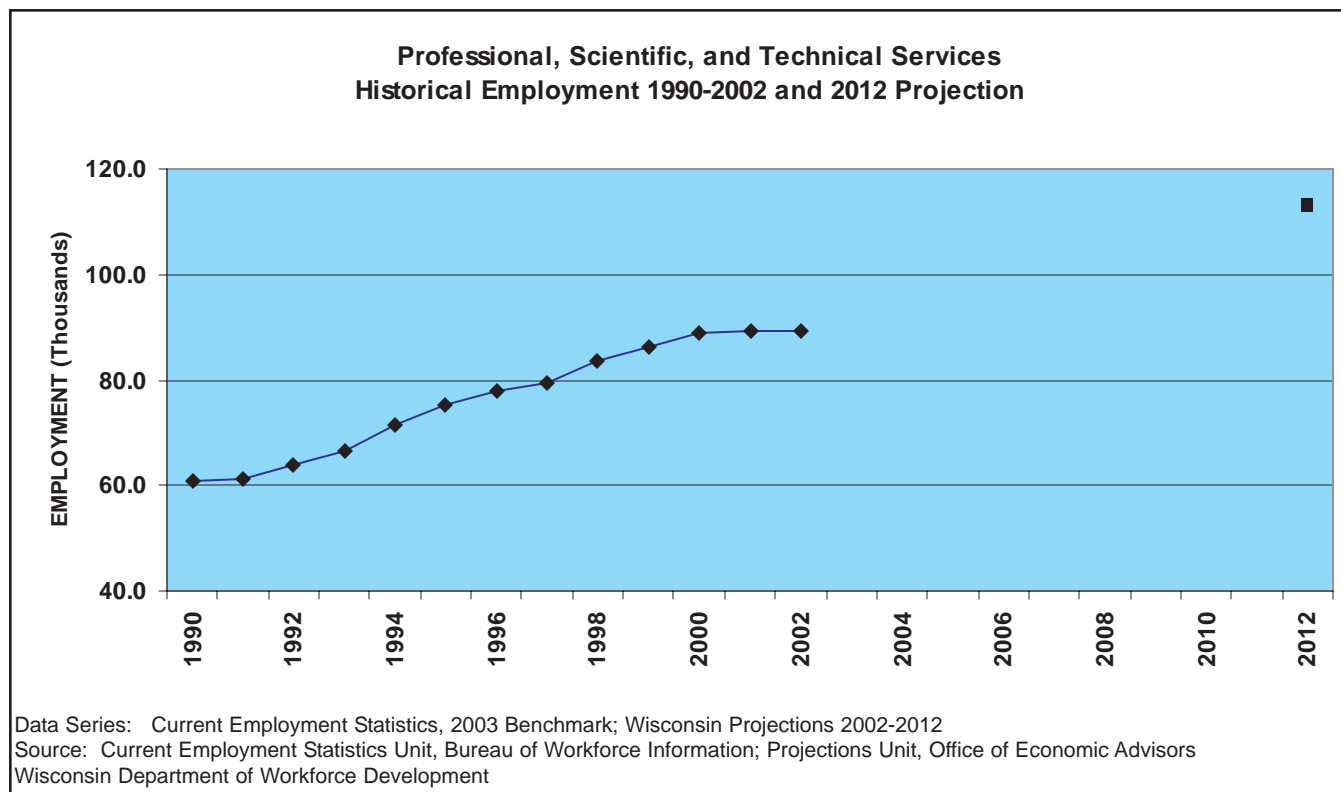
### Past, Present, and Future Employment

In 1990 this sector had 61,000 jobs. Twelve years later employment reached a level of 89,350 jobs. Employment is expected to continue its upward trend and attain a level almost 113,000 jobs. All of the industry groups within this sector are expected to add jobs with computer systems design services and management, scientific, and technical consulting services leading the way.

### Factors Affecting Employment

The customers for this sector's services are both businesses and private households. As firms look for ways to improve their current operations or to expand, and as entrepreneurs seek to start new businesses, many will use the services of lawyers, accountants, architects, advertising firms, consultants, and computer systems designers. Consequently, as the business community continues to grow, so will the need for professional, scientific, and technical services.

In addition, demand from private individuals for the services of lawyers, accountants, veterinarians, architects, photographers, and credit counselors is expected to increase as the population grows. This demand will also boost employment in this sector.



## Administrative and Support Services, NAICS 561

Administrative and Support Services Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
97,500	113,020	147,730	34,710	30.7%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Firms in the administrative and support services sub-sector support the routine operations of other organizations on a contract or fee basis. Usually, the businesses in this sector specialize in one, or just a few functions, and then provide their services to a wide variety of clients. Some examples of services provided in this industry are billing, building maintenance, temporary help, telemarketing, photocopying, debt collection, credit reporting, travel arrangements, security, pest control, and groundskeeping.

Private households also use some of this industry's services, such as landscaping and groundskeeping, cleaning services, pest control, security, and photocopying.

Forty-two percent of the employment in administrative and support services is found among firms offering temporary staffing. Another 24% of jobs are in services to buildings and dwellings such as janitorial and groundskeeping services.

### Past, Present, and Future Employment

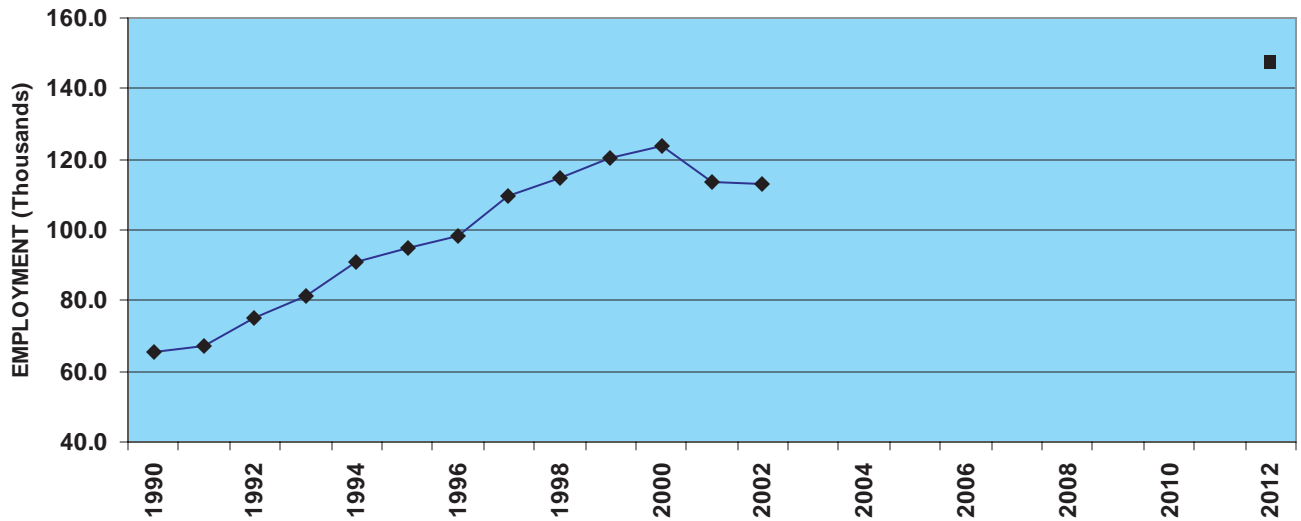
Between 1990 and 2000, employment in this industry grew from 65,400 to 123,700 jobs. In 2002 the number of jobs dipped to 113,000. However, since 2003 jobs have increased. In 2012, there will be nearly 148,000 jobs in this industry.

### Factors Affecting Employment

Demand for services in this industry is expected to remain strong as organizations continue to redefine or limit their core operations and outsource other functions. In addition, many businesses are increasing their reliance on temporary workers as a way to reduce labor costs and overhead. As was mentioned on page six, a large number of manufacturing jobs have actually been shifted from manufacturing into administrative and support services. In 2002, there were at least 12,000 temporary help services jobs in manufacturing. In 2012, the estimate is that there will be at least 17,000.

Also, among household consumers, demand is expected to remain strong for services such as landscaping, cleaning, and security.

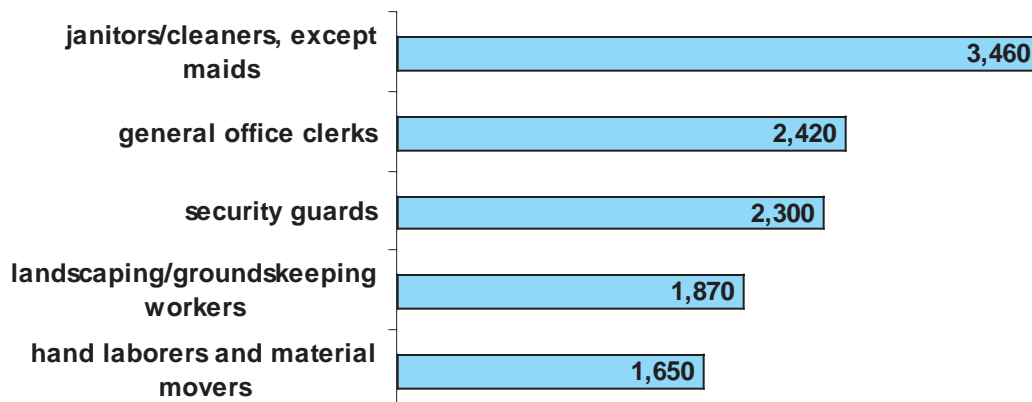
**Administrative and Support Services  
Historical Employment 1990-2002 and 2012 Projection**



Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012

Source: Current Employment Statistics Unit, Bureau of Workforce Information; Projections Unit, Office of Economic Advisors  
Wisconsin Department of Workforce Development

**Administrative and Support Services  
Occupations with the Most New Jobs  
2002-2012**



Source: Wisconsin Projections 2002-2012, Office of Economic Advisors, Wisconsin Department of Workforce Development

## Educational Services, NAICS 61

Educational Services Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
228,600	255,290	293,700	38,410	15.0%	13.3%
Data Series: Current Employment Statistics, 2003 Benchmark; Wisconsin Projections 2002-2012 Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

Educational services include public and private elementary and secondary schools, technical schools, colleges and universities, and educational support services such as consultants, guidance counseling, testing, and student exchange programs. Two out of every three jobs in this sector are found in elementary and secondary schools.

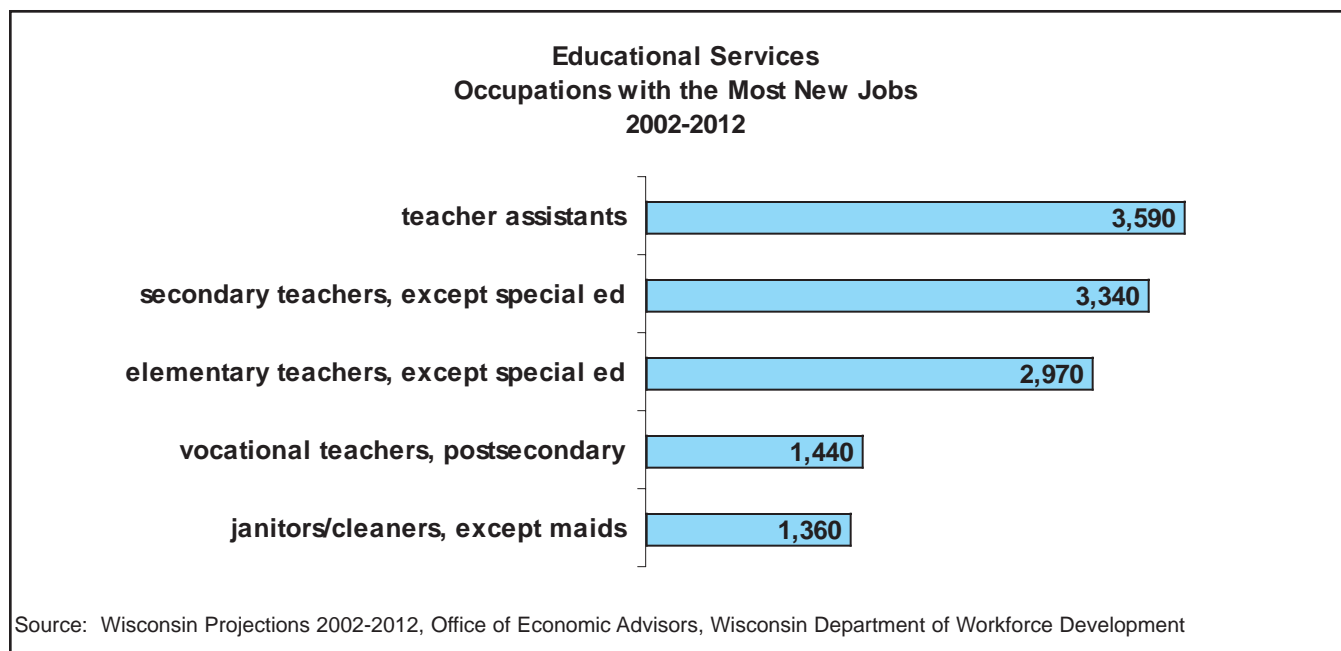
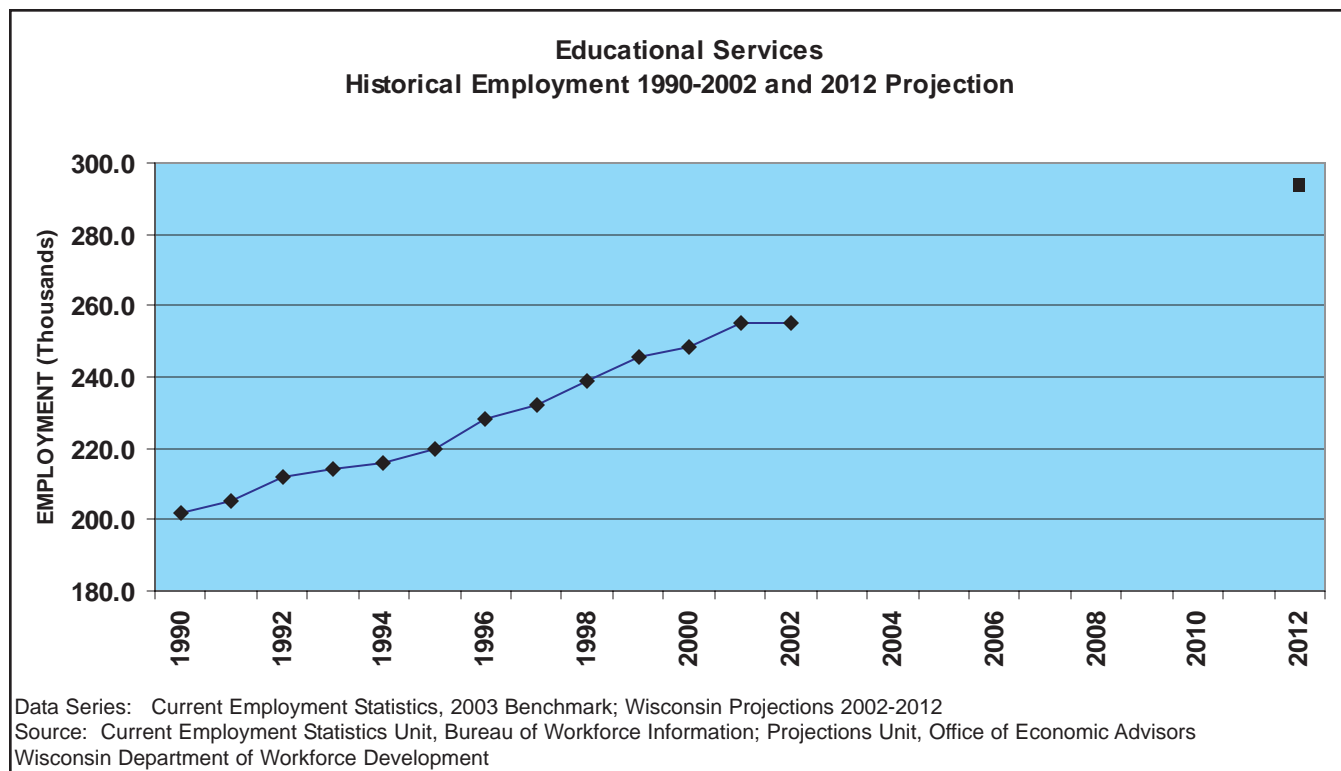
### Past, Present, and Future Employment

Between 1990 and 2002, educational services employment grew on average 2.5% each year. This growth will slow during the 2002-2012 period to an average of 1.5% per year. Employment is expected to increase from about 255,000 jobs in 2002 to nearly 294,000 in 2012.

### Factors Affecting Employment

Population growth will contribute to some increase in educational services employment, as both more children and adults will be taking classes. However, tight budgets will restrain job growth.

Elementary, middle, and secondary schools are expected to decrease class sizes, offer more services to students with special needs, and educate an increasingly diverse student population. Technical schools, colleges, and universities will experience increased demand for classes from both traditional students and older adults seeking to upgrade their knowledge and skills. However, schools at all levels will continue to face financial constraints which will force them to decide which services and classes to provide and which to eliminate. There are also pressures to consolidate administrative functions and campuses.



## Health Care Services, NAICS 621, 622, 623

Health Care Services Employment Outlook					
1990-2002 Average Employment	2002 Estimated Employment	2012 Projected Employment	2002-2012 New Jobs	2002-2012 % Change in this Industry	2002-2012 % Change across all Industries
225,200	266,960	349,500	82,540	30.9%	13.3%
Data Series: Current Employment Statistics (CES), 2003 Benchmark; Quarterly Census of Employment and Wages (QCEW); Wisconsin Projections 2002-2012 Source: CES and QCEW Units, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors Wisconsin Department of Workforce Development					

### Description

The North American Industry Classification System (NAICS) combines health care and social assistance into the same sector. However, here the focus will be just on the health care portion. Health care is made up of ambulatory health care services, hospitals, and nursing and residential care facilities. Ambulatory health care services includes doctors' and dentists' offices, outpatient care centers, medical and diagnostic laboratories, home health care services, ambulance services, and blood banks. Hospital employment includes both private, and state and local government hospitals.

In 2002, hospitals accounted for 39% of health care jobs, followed by ambulatory health care services with 36% and nursing and residential care centers with 25%. Although each one of these segments will be adding new jobs during the next ten years, the share of health care employment in hospitals will shrink while it grows in the other two groups. By 2012 ambulatory health care services will comprise 38% of health care employment and nursing homes and residential care centers 26%. Hospitals' share will fall to 36%.

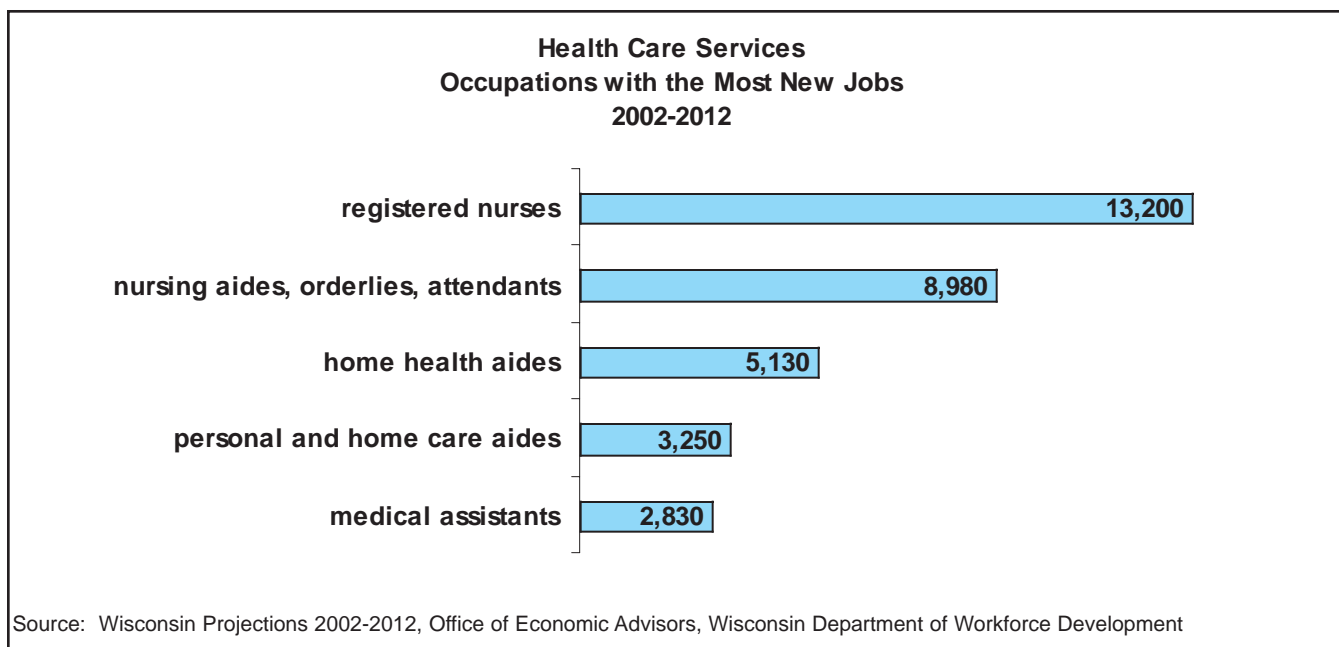
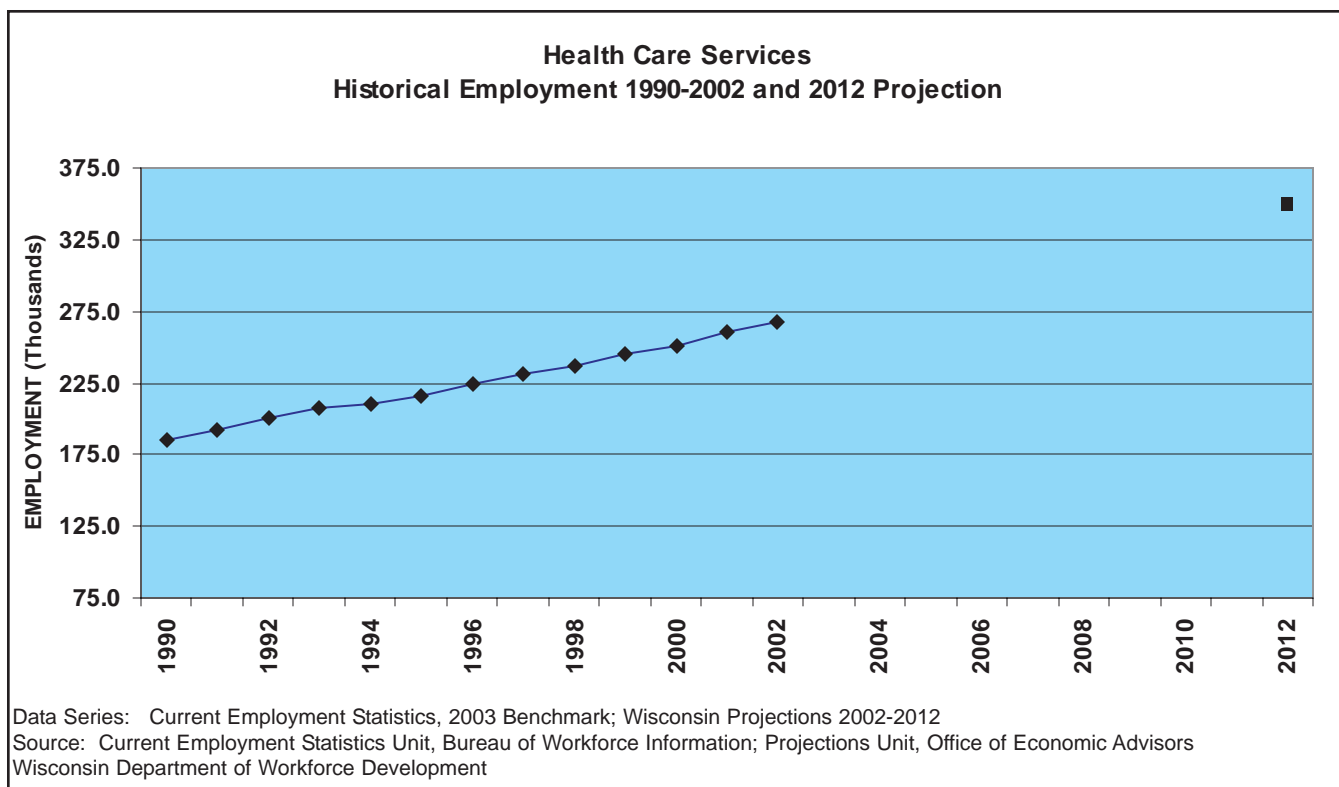
### Past, Present, and Future Employment

In 1990, health care had just over 185,000 jobs. Since then employment has grown steadily. In 2002, there were 267,000 jobs. Employment in this sector will soar over the next ten years, and is expected to reach nearly 350,000 in 2012. During the 2002-2012 period, one out of every five jobs created in Wisconsin will be in health care.

### Factors Affecting Employment

Employment in health services is being propelled by the aging of Wisconsin's population and treatment innovations. In addition, the shift from inpatient to outpatient care combined with decreased hospital stays, will shift employment in this sector from hospitals to ambulatory health care services and residential care centers.

Health care employers are searching for ways to decrease their reliance on workers through the use of computer technology and automation. However, due to the sheer volume of patients who will need care, health care employment will continue to grow in the 2002-2012 period.





## DETAILED INDUSTRY PROJECTIONS

In figure 1-7 below, Wisconsin's employment is broken down among the state's eleven super-sectors and 86 sub-sectors. This table is available in Excel format on the Office of Economic Advisors website at [http://dwd.wisconsin.gov/oea/longterm\\_projections.htm](http://dwd.wisconsin.gov/oea/longterm_projections.htm).

Figure 1-7: Detailed Industry Employment Projections					
NAICS	Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
	<b>Total, All Nonfarm Industries</b>	<b>2,963,190</b>	<b>3,357,440</b>	<b>394,250</b>	<b>13.3%</b>
	<b>Total, Without Self-Employed and Unpaid Family Workers</b>	<b>2,788,000</b>	<b>3,184,010</b>	<b>396,010</b>	<b>14.2%</b>
<b>21, 1133</b>	<b>Natural Resources and Mining</b>	<b>3,820</b>	<b>3,900</b>	<b>80</b>	<b>2.1%</b>
<b>23</b>	<b>Construction</b>	<b>124,130</b>	<b>150,700</b>	<b>26,570</b>	<b>21.4%</b>
236	Construction of Buildings	30,990	36,600	5,610	18.1%
237	Heavy and Civil Engineering Construction	13,500	15,500	2,000	14.8%
238	Specialty Trade Contractors	79,640	98,600	18,960	23.8%
<b>31-33</b>	<b>Manufacturing</b>	<b>528,300</b>	<b>536,900</b>	<b>8,600</b>	<b>1.6%</b>
	<b>Durable Goods</b>	<b>323,770</b>	<b>330,200</b>	<b>6,430</b>	<b>2.0%</b>
321	Wood Product Manufacturing	26,090	28,700	2,610	10.0%
327	Nonmetallic Mineral Product Manufacturing	10,580	11,100	520	4.9%
331	Primary Metal Manufacturing	20,930	19,900	(1,030)	-4.9%
332	Fabricated Metal Product Manufacturing	70,520	72,300	1,780	2.5%
333	Machinery Manufacturing	72,740	74,700	1,960	2.7%
334	Computer and Electronic Product Manufacturing	23,750	22,900	(850)	-3.6%
335	Electrical Equipment, Appliance, and Component Mfg	27,150	26,900	(250)	-0.9%
336	Transportation Equipment Manufacturing	36,690	37,900	1,210	3.3%
337	Furniture and Related Product Manufacturing	18,290	19,150	860	4.7%
339	Miscellaneous Manufacturing	17,030	16,650	(380)	-2.2%
	<b>Nondurable Goods</b>	<b>204,530</b>	<b>206,700</b>	<b>2,170</b>	<b>1.1%</b>
311	Food Manufacturing	63,080	66,200	3,120	4.9%
312	Beverage and Tobacco Product Manufacturing	2,930	2,740	(190)	-6.5%
313	Textile Mills	1,360	740	(620)	-45.6%
314	Textile Product Mills	2,610	2,400	(210)	-8.0%
315	Apparel Manufacturing	2,330	870	(1,460)	-62.7%
316	Leather and Allied Product Manufacturing	2,320	1,690	(630)	-27.2%
322	Paper Manufacturing	46,150	41,000	(5,150)	-11.2%
323	Printing and Related Support Activities	34,720	35,500	780	2.2%
324	Petroleum and Coal Products Manufacturing	430	370	(60)	-14.0%
325	Chemical Manufacturing	14,670	14,190	(480)	-3.3%
326	Plastics and Rubber Products Manufacturing	33,930	41,000	7,070	20.8%
(continued)					

Figure 1-7: Detailed Industry Employment Projections (continued)

NAICS	Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
	<b>Trade, Transportation, and Utilities</b>	<b>552,140</b>	<b>627,300</b>	<b>75,160</b>	<b>13.6%</b>
<b>42</b>	<b>Wholesale Trade</b>	<b>114,200</b>	<b>128,800</b>	<b>14,600</b>	<b>12.8%</b>
423	Merchant Wholesalers, Durable Goods	63,700	74,140	10,440	16.4%
424	Merchant Wholesalers, Nondurable Goods	44,750	48,130	3,380	7.6%
425	Wholesale Electronic Markets and Agents and Brokers	5,750	6,520	770	13.4%
<b>44</b>	<b>Retail Trade</b>	<b>318,070</b>	<b>357,900</b>	<b>39,830</b>	<b>12.5%</b>
441	Motor Vehicle and Parts Dealers	39,360	43,170	3,810	9.7%
442	Furniture and Home Furnishings Stores	10,030	11,920	1,890	18.8%
443	Electronics and Appliance Stores	8,330	11,150	2,820	33.9%
444	Building Material and Garden Equipment and Supplies Dealers	26,980	31,760	4,780	17.7%
445	Food and Beverage Stores	60,070	64,300	4,230	7.0%
446	Health and Personal Care Stores	16,240	17,940	1,700	10.5%
447	Gasoline Stations	23,460	23,910	450	1.9%
448	Clothing and Clothing Accessories Stores	18,260	17,660	(600)	-3.3%
451	Sporting Goods, Hobby, Book, and Music Stores	12,790	15,320	2,530	19.8%
452	General Merchandise Stores	58,890	64,300	5,410	9.2%
453	Miscellaneous Store Retailers	19,170	24,220	5,050	26.3%
454	Nonstore Retailers	24,480	32,250	7,770	31.7%
<b>48</b>	<b>Transportation and Warehousing</b>	<b>108,180</b>	<b>130,190</b>	<b>22,010</b>	<b>20.3%</b>
481	Air Transportation	4,640	5,220	580	12.5%
482	Rail Transportation	3,730	3,400	(330)	-8.8%
483	Water Transportation	1,600	1,630	30	1.9%
484	Truck Transportation	44,880	54,590	9,710	21.6%
485	Transit and Ground Passenger Transport	12,750	17,020	4,270	33.5%
486	Pipeline Transportation	160	160	0	0.0%
487	Scenic and Sightseeing Transportation	370	410	40	10.8%
488	Support Activities for Transportation	4,090	5,100	1,010	24.7%
491	Postal Service	15,410	14,850	(560)	-3.6%
492	Couriers and Messengers	8,760	12,520	3,760	42.9%
493	Warehousing and Storage	11,790	15,290	3,500	29.7%
<b>22</b>	<b>Utilities</b>	<b>11,700</b>	<b>10,400</b>	<b>(1,300)</b>	<b>-11.1%</b>

(continued)

Figure 1-7: Detailed Industry Employment Projections (continued)

NAICS	Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
<b>51</b>	<b>Information</b>	<b>51,140</b>	<b>54,700</b>	<b>3,560</b>	<b>7.0%</b>
511	Publishing Industries	18,180	18,140	(40)	-0.2%
512	Motion Picture and Sound Recording Industries	4,110	4,970	860	20.9%
515	Broadcasting (except Internet)	5,010	4,650	(360)	-7.2%
516	Internet Publishing and Broadcasting	110	140	30	27.3%
517	Telecommunications	14,670	14,580	(90)	-0.6%
518	Internet, Web Search Portals, and Data Processing Services	9,000	12,140	3,140	34.9%
519	Other Information Services	70	80	10	14.3%
	<b>Financial Activities</b>	<b>153,810</b>	<b>173,200</b>	<b>19,390</b>	<b>12.6%</b>
<b>52</b>	<b>Finance and Insurance</b>	<b>126,960</b>	<b>142,300</b>	<b>15,340</b>	<b>12.1%</b>
521	Monetary Authorities - Central Bank	*	*	*	*
522	Credit Intermediation and Related Activities	51,810	58,440	6,630	12.8%
523	Securities, Commodity Contracts, Other Financial Activities	9,640	11,610	1,970	20.4%
524	Insurance Carriers and Related Activities	64,290	70,880	6,590	10.3%
525	Funds, Trusts, and Other Financial Vehicles	*	*	*	*
<b>53</b>	<b>Real Estate and Rental and Leasing</b>	<b>26,850</b>	<b>30,900</b>	<b>4,050</b>	<b>15.1%</b>
531	Real Estate	17,560	19,080	1,520	8.7%
532	Rental and Leasing Services	8,960	11,400	2,440	27.2%
533	Lessors Nonfinancial Intangible Assets (ex Copyrighted Works)	330	420	90	27.3%
	<b>Professional and Business Services</b>	<b>239,790</b>	<b>306,130</b>	<b>66,340</b>	<b>27.7%</b>
<b>54</b>	<b>Professional, Scientific, and Technical Services</b>	<b>89,350</b>	<b>112,970</b>	<b>23,620</b>	<b>26.4%</b>
<b>55</b>	<b>Management of Companies and Enterprises</b>	<b>32,480</b>	<b>39,100</b>	<b>6,620</b>	<b>20.4%</b>
<b>56</b>	<b>Administrative/Support and Waste Mgmt/Remediation</b>	<b>117,970</b>	<b>154,060</b>	<b>36,090</b>	<b>30.6%</b>
561	Administrative and Support Services	113,020	147,730	34,710	30.7%
562	Waste Management and Remediation Service	4,950	6,330	1,380	27.9%
	<b>Education and Health Services</b>	<b>576,340</b>	<b>718,800</b>	<b>142,460</b>	<b>24.7%</b>
<b>61</b>	<b>Educational Services, Including State and Local Gov</b>	<b>255,290</b>	<b>293,700</b>	<b>38,410</b>	<b>15.0%</b>
<b>62</b>	<b>Health Care/Social Assistance, Inc State/Local Gov Hosp</b>	<b>321,050</b>	<b>425,100</b>	<b>104,050</b>	<b>32.4%</b>
621	Ambulatory Health Care Services	95,160	133,100	37,940	39.9%
622	Hospitals, Including State and Local Government	103,900	126,700	22,800	21.9%
623	Nursing and Residential Care Facilities	67,900	89,700	21,800	32.1%
624	Social Assistance	54,090	75,600	21,510	39.8%

(continued)

Figure 1-7: Detailed Industry Employment Projections (continued)

NAICS	Industry Title	2002 Estimated Employment <sup>(1)</sup>	2012 Projected Employment <sup>(1)</sup>	2002-2012 Employment Change	2002-2012 Percent Change
	<b>Leisure and Hospitality</b>	<b>240,440</b>	<b>272,180</b>	<b>31,740</b>	<b>13.2%</b>
<b>71</b>	<b>Arts, Entertainment, and Recreation</b>	<b>33,180</b>	<b>37,700</b>	<b>4,520</b>	<b>13.6%</b>
711	Performing Arts, Spectator Sports, and Related Industries	6,510	6,790	280	4.3%
712	Museums, Historical Sites, and Similar Institution	1,600	1,720	120	7.5%
713	Amusement, Gambling, and Recreation Industries	25,070	29,190	4,120	16.4%
<b>72</b>	<b>Accommodation and Food Services</b>	<b>207,260</b>	<b>234,480</b>	<b>27,220</b>	<b>13.1%</b>
721	Accommodation	29,980	34,200	4,220	14.1%
722	Food Services and Drinking Places	177,280	200,280	23,000	13.0%
<b>81</b>	<b>Other Services (Except Government)</b>	<b>137,850</b>	<b>153,900</b>	<b>16,050</b>	<b>11.6%</b>
811	Repair and Maintenance	22,310	25,950	3,640	16.3%
812	Personal and Laundry Services	25,820	31,480	5,660	21.9%
813	Religious/Grantmaking/Civic/Professional Organizations	84,110	91,200	7,090	8.4%
814	Private Households	5,620	5,270	(350)	-6.2%
	<b>Government</b>	<b>180,240</b>	<b>186,300</b>	<b>6,060</b>	<b>3.4%</b>
	Federal Government, Excluding Postal Service	14,490	14,400	(90)	-0.6%
	State Government, Excluding Education and Hospitals	35,730	36,900	1,170	3.3%
	Local Government, Excluding Education and Hospitals <sup>(2)</sup>	130,020	135,000	4,980	3.8%
	<b>Self-Employed and Unpaid Family Workers, Primary Job</b>	<b>175,190</b>	<b>173,430</b>	<b>(1,760)</b>	<b>-1.0%</b>
	Self-Employed Workers, Primary Job	173,130	171,760	(1,370)	-0.8%
	Unpaid Family Workers, Primary Job	2,060	1,680	(380)	-18.4%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

(2) Local government employment includes tribal owned operations.

\* Data is not available.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data. Unpublished data from the US Bureau of Labor Statistics and US Census Bureau is also used.

To the extent possible the projections take into account anticipated changes in Wisconsin's economy between 2002 and 2012. It is important to note that unanticipated events may affect the accuracy of the projections.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

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## Wisconsin Projections 2002 - 2012

### Chapter 2: Employment in Occupations

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#### OVERVIEW

##### How Many Job Openings will there be in Wisconsin?

During the 2002 to 2012 time period Wisconsin is projected to have about 1.1 million job openings for people who are entering a given occupation for the first time. Just over 394,000 of these openings are expected to arise from newly created jobs. The remaining 706,000 openings will be the result of people permanently leaving their occupations due to retirement, death, career change, or some other reason. Overall, Wisconsin's employment is expected to grow from about 3.0 to 3.4 million jobs.

The projections do not capture job openings resulting from what is typically called turnover. Turnover occurs when people change employers but stay in the same occupation. For example, if a person who is a cashier leaves their job at ABC Foods and becomes a cashier at XYZ Mart, the opening at ABC Foods is not included in the projections. The projections only include openings that result from permanent exits from an occupation. So if a person who is a cashier at ABC Foods becomes a truck driver at ABC Foods or at another company, the cashier vacancy is included.

##### What is the Difference between an Occupation and an Industry?

This second chapter examines how jobs are distributed among the state's occupations. An occupation describes the type of work a person does. Some examples of common occupations are cashiers, electricians, secretaries, truck drivers, registered nurses, and elementary school teachers.

An industry is a distinct group of businesses and describes where a person works. Some examples of industries are building equipment contractors, paper mills, general freight trucking, hospitals, and department stores.

Some occupations, such as secretaries and general office clerks, are found in almost every industry. Other occupations, such as roofers and bookbinders, are found in only a few industries.

Likewise, some industries, such as hospitals and local government, employ people in a wide variety of occupations. Other industries, such as non-metallic mineral mining and restaurants, employ people in relatively few occupations.

##### How are Occupations Defined and Classified?

Except as noted in the data tables, this publication defines and classifies occupations using the Standard Occupational Classification (SOC) system.

The SOC system groups jobs into one of 821 detailed occupations. These occupations are then combined into 449 broad occupations, 96 minor groups, and 23 major groups. The U.S. Bureau of Labor Statistics has further combined the 23 major groups into 10 broad groups.

Although the SOC system identifies 821 detailed occupations only 765 of these occupations are present in Wisconsin's economy.

## What Factors Affect Employment in Occupations?

The need for a certain occupation and the type of work performed in that occupation are determined by several factors. These factors include the types of industries present in the economy, the competitiveness of the industries, technology, globalization, laws, business practices, social trends, and demographic trends.

Between 2002 and 2012 employment in some industries and, as a result, in some occupations will decline. The paper manufacturing industry is projected to lose 5,150 jobs. The apparel manufacturing industry is projected to lose 1,460 jobs. In terms of occupations, these declines in industry employment translate into an expected loss of 490 jobs for sewing machine operators; 190 for paper goods machine setters, operators, and tenders; 170 for printing machine operators; and 110 for team assemblers.

Other Wisconsin industries will grow between 2002 and 2012. For example, the plastics and rubber products industry is expected to add 7,070 jobs. This industry growth means an additional 620 jobs for molding, coremaking, and casting machine setters, operators, and tenders; 300 jobs for computer-controlled machine tool operators; and 290 jobs for team assemblers.

During the past thirty years, computers have secured a strong foothold in most industries. On-going innovations in computer technology are still affecting employment in numerous occupations, contributing to a decline in some occupations and growth in others. For example, there is a projected decline of 600 positions for computer operators, but a projected increase of 1,510 jobs for network and computer systems administrators. A major factor in this employment shift is the on-going change from mainframe to personal computers.

In addition, occupations are affected by changing business practices. One trend is the redistribution of responsibilities from one occupation to one or more other occupations. Word processors and typists are projected to lose 1,700 positions and secretaries, except legal, medical, and executive are expected to lose 2,770 jobs because other workers in a wide variety of occupations now produce their own documents and voice mail answers telephones.

Social trends also influence occupations. The growth in pet ownership, in combination with owners' changing attitudes about pet health care, is increasing the need for veterinarians (expected to increase by 450), veterinary technologists and technicians (expected to increase by 540), and veterinary assistants (expected to increase by 210).

Furthermore, changing demographics affect occupational employment. The aging of Wisconsin's population, and the subsequent increase in demand for health care services, is contributing to the increase of registered nurses (expected to add 14,600 jobs); nursing aides, orderlies, and attendants (expected to add 10,310 jobs); and home health aides (expected to add 5,950 jobs).

## What Information is Available about Occupations in this Book?

The following information is available for all 765 occupations. This information is considered when assessing the relative importance of the 10 broad occupational groups and the detailed level occupations presented later.

- 2002 Employment: The estimated number of jobs in the occupation in 2002.
- 2012 Employment: The projected number of jobs in the occupation in 2012.
- Employment Change: The difference in the number of jobs between 2002 and 2012. A positive number means employment is growing due to the creation of new jobs. A negative number means employment is declining in the occupation.

**What Information is Available about Occupations in this Book? (continued)**

- **Percent Change:** An indication of how fast employment is expected to increase or decrease from 2002 to 2012. The larger the positive percent change, the faster the occupation is growing. Likewise, the larger the negative percent change, the faster the occupation is declining.
- **New Jobs:** An estimate of how many net new jobs will be created in an occupation. In most tables this is illustrated on an average annual basis. In other words, the total number of new jobs expected over the ten year period is divided by ten.
- **Replacements:** An estimate of how many net job openings there will be in each occupation due to people permanently leaving the occupation. In most tables replacement openings are shown on an average annual basis.

A permanent exit occurs when a person leaves the labor force due to death, retirement, or for some other reason. A permanent exit from an occupation also occurs when a person leaves a given occupation for a new occupation. For example, a person who is working as a cashier leaves that occupation and gets a job as a truck driver.

Replacements do not include openings that exist because people changed employers but remained in the same occupation. For example, if a person moves from being a cashier at ABC Novelties to being a cashier at XYZ Groceries, the vacancy created at ABC Novelties is not included as a replacement opening.

- **Total Openings:** An estimate of the total number of jobs that will be available for new entrants into the occupation. Total openings are the sum of new jobs and replacements. New entrants are people who are entering the occupation for the first time.
- **Typical Education and Training Path:** A generalization about the education and training usually needed to enter an occupation. This is the most common way people are expected to enter the occupation during 2002 to 2012, although there may be other education or training accepted by employers. Also, there may be additional educational, training, or licensing requirements.

The U.S. Bureau of Labor Statistics has identified eleven education and training categories. More information about the education and training categories is found in the next section.

- **Average Annual Salary:** An estimate of the average amount an occupation pays on a yearly basis.
- **Hourly Wage Rate - Middle Range:** An estimate of the 25th and 75th percentiles in the hourly wage distribution for an occupation. Fifty percent of the workers in the occupation earn wages in this range. Generally, a person just starting out in this occupation should expect a wage at or below the 25th percentile. A person with several years of experience should expect a wage at or above the 75th percentile.

Note the projections are only for one point in time, in this case 2012. In order to gauge which occupations are expected to have net increases or decreases in jobs over time, the employment anticipated in 2012 is compared to employment in 2002. The projections do not provide information about the dynamics of employment in the intervening years between 2002 and 2012. Employment in any particular occupation may have many ups and downs during the ten year period. However, the projections only indicate where employment is expected to be in 2012 relative to 2002.



### **What are the Education and Training Categories?**

The U.S. Bureau of Labor Statistics (BLS) has identified eleven education and training categories. Each of Wisconsin's 765 occupations has been assigned to one of these categories according to these BLS guidelines:

1. An occupation is assigned to the category that best describes the education or training needed by most workers to become fully qualified.
2. Postsecondary education, if needed, takes priority over work-related training even though additional skills or experience may be needed for a worker to become fully qualified.
3. If postsecondary education is generally not required, the length of time an average worker needs to become fully qualified through a combination of on-the-job training and experience is used to categorize the occupation.

The education and training categories are described below. In addition, the number of occupations and anticipated job openings in each category are included with the description. This information is also depicted in figure 2-1.

#### ***Short-Term On-The-Job Training***

These occupations require no more than one month of on-the-job training and the training usually happens at the workplace.

Short-term training is common in 138 occupations. Included in this category are cashiers, home health aides, retail salespeople, and carpenters' helpers. These occupations will account for over 443,000 job openings between 2002 and 2012.

#### ***Moderate-Term On-The-Job Training***

Training for these occupations usually occurs at the workplace and lasts from one to twelve months.

There are 175 occupations in this category and they will account for almost 200,000 job openings. Occupations included in this group are pharmacy technicians, insurance claims clerks, roofers, and multiple machine tool operators.

#### ***Long-Term On-The-Job Training***

These occupations require more than one year of on-the-job training, or combined work experience and formal classroom instruction. This training is often in the form of an adult apprenticeship.

Long-term on-the-job training is common in 84 occupations. These occupations will account for nearly 80,000 job openings between 2002 and 2012. Dispensing opticians, fire fighters, telecommunications line installers, and plumbers are examples of occupations in this category.

#### ***Work Experience in a Related Occupation***

Occupations in this category require skills and experience gained in related jobs. Entry into some of these occupations may result from promotion within a company. Many of these occupations are supervisory positions.

Work experience in a related occupation is usually required in 47 occupations. These occupations represent 61,000 job openings. Examples of occupations in this group are first-line supervisors of retail sales workers, fire inspectors, new accounts clerks, and building inspectors.

**Figure 2-1: Education and Training Paths, by Number of Occupations, Employment, and Job Openings 2002 to 2012**

Education and Training Path <sup>(1)</sup>	Number of Occupations	2002 Estimated Employment <sup>(2)</sup>	2012 Projected Employment <sup>(2)</sup>	2002-2012 Employment Change <sup>(2)</sup>	2002-2012 Percent Change
Short-Term On-The-Job Training	138	1,056,920	1,186,120	129,200	12.2%
Moderate-Term On-The-Job Training	175	648,240	706,900	58,660	9.0%
Long-Term On-The-Job Training	84	234,990	263,360	28,370	12.1%
Work Experience in a Related Occupation	47	192,050	213,020	20,970	10.9%
Postsecondary Vocational Award	51	133,030	151,850	18,820	14.1%
Associate Degree	37	81,210	99,960	18,750	23.1%
Bachelor's Degree	109	396,280	474,350	78,070	19.7%
Master's Degree	38	60,410	71,710	11,300	18.7%
Doctoral Degree	40	23,850	30,780	6,930	29.1%
First Professional Degree	16	33,550	39,950	6,400	19.1%
Bachelor's or Higher Degree + Work Experience	30	102,670	119,440	16,770	16.3%
Total, All Occupations	765	2,963,200	3,357,440	394,240	13.3%

Education and Training Path <sup>(1)</sup>	Number of Occupations	Average Annual New Jobs <sup>(2)</sup>	Average Annual Replacements <sup>(2)</sup>	Average Annual Total Openings <sup>(2)</sup>	Percent of Openings
Short-Term On-The-Job Training	138	12,920	31,390	44,310	40.3%
Moderate-Term On-The-Job Training	175	5,870	13,630	19,500	17.7%
Long-Term On-The-Job Training	84	2,840	5,110	7,950	7.2%
Work Experience in a Related Occupation	47	2,100	4,000	6,100	5.5%
Postsecondary Vocational Award	51	1,880	2,970	4,850	4.4%
Associate Degree	37	1,880	1,470	3,350	3.0%
Bachelor's Degree	109	7,810	7,760	15,570	14.1%
Master's Degree	38	1,130	1,250	2,380	2.2%
Doctoral Degree	40	690	540	1,230	1.1%
First Professional Degree	16	640	530	1,170	1.1%
Bachelor's/Higher Degree + Work Experience	30	1,680	1,920	3,600	3.3%
Total, All Occupations	765	39,440	70,570	110,010	100.0%

**Notes:**

- (1) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.
- (2) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

For the purposes of this table, the data for registered nurses is included under bachelor's degree. Depending upon on the specific position and employer either an associate or bachelor's degree are most common.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data. Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

## **What are the Education and Training Categories? (continued)**

### ***Postsecondary Vocational Award***

These formal training programs last from a few weeks to more than a year, and are offered at vocational or technical schools. These programs lead to a certificate or another award, but not to a degree.

There are 51 occupations in this group. These occupations will have about 49,000 job openings. Included in this category are surgical technologists, chefs, cosmetologists, and automotive mechanics.

### ***Associate Degree***

This degree usually requires two years of full-time academic work beyond high school. Most associate degree programs are at technical or community colleges.

An associate degree is common in 37 occupations. These occupations will account for almost 34,000 job openings. These occupations include biological technicians, paralegals, electrical engineering technicians, and respiratory therapists.

### ***Bachelor's Degree***

A bachelor's degree requires four or five years of full-time academic work at a college or university.

In Wisconsin, 109 occupations generally require a bachelor's degree. These occupations will account for nearly 160,000 job openings between 2002 and 2012. Examples of occupations requiring a bachelor's degree are computer systems analysts, elementary school teachers, physician assistants, and accountants.

### ***Master's Degree***

A master's degree requires one to two years of full-time study beyond a bachelor's degree.

There are 38 occupations in this category. These occupations will account for about 24,000 openings. A master's is needed to be a librarian, an audiologist, an epidemiologist, or a rehabilitation counselor.

### ***Doctoral Degree***

This degree usually requires at least three years of full-time study beyond a bachelor's degree. A doctoral degree is often needed to teach at the university level or to do advanced research in a business, government, or academic setting.

There are 40 occupations that typically require a doctoral degree. These occupations will account for just over 12,000 job openings. Some examples of occupations generally requiring a doctorate are microbiologists, university professors, clinical psychologists, and computer research scientists.

### ***First Professional Degree***

These degrees typically require at least three years of full-time study beyond a bachelor's degree. These degrees include law and medical school degrees.

In Wisconsin, 16 occupations usually require a first professional degree. These occupations will have nearly 12,000 job openings. Occupations in this category include veterinarians, lawyers, physicians, and pharmacists.

## What Information is Available about Occupations in this Book? (continued)

### ***Bachelor's or Higher Degree, Plus Work Experience***

These occupations require a bachelor's or higher degree, in addition to work experience in a related non-managerial position. Most of these occupations are managerial or executive positions.

There are 30 occupations in this category. These occupations will account for about 36,000 openings. Examples of occupations in this category are judges, financial managers, purchasing managers, and education administrators.

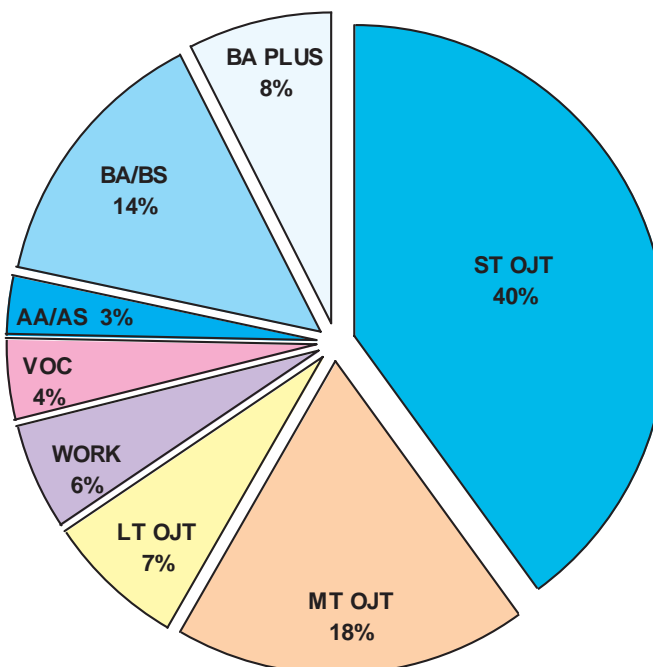
### **What Type of Education and Training will be Needed for Most Jobs?**

In order to fill the job openings that will exist during the next ten years, Wisconsin needs people with a wide variety of interests, aptitudes, and educational/training backgrounds.

Most occupations, and most of the projected job openings from 2002 to 2012, will not require people to have substantial formal education beyond high school (see figure 2-2). Nearly 60% of the openings will typically require only short- or moderate-term on-the-job training. Twenty percent of positions will generally require post-secondary education or training but less than a bachelor's degree. About 22% of the openings will require at least a bachelor's degree.

Figure 2-11, which begins on page 60, lists the education and training path for each of Wisconsin's occupations.

**Figure 2-2: Education and Training Paths, by Percentage of Job Openings  
2002 to 2012**



ST OJT: Short-term on-the-job training; MT OJT: Moderate-term on-the-job training; LT OJT: Long-term on-the-job training;  
 WORK: Work experience in a related occupation; VOC: Postsecondary vocational training; AA/AS: Associate degree;  
 BA/BS: Bachelor's degree; BA PLUS: Bachelor's or higher degree plus work experience

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

## EMPLOYMENT BY BROAD OCCUPATIONAL GROUP

Occupations are grouped into ten broad categories depending upon the type of work performed. The groups are

- Management, business, and financial
- Professional and related
- Service
- Sales and related
- Office and administrative support
- Farming, fishing, and forestry
- Construction and extraction
- Installation, maintenance, and repair
- Production
- Transportation and material moving

### Professional and Related Occupations Dominate 2012 Employment and New Job Creation

Based on projected 2012 employment size and new job creation, the professional group is the dominant category. This group includes occupations such as database administrators, chemical engineers, psychologists, social workers, lawyers, teachers, musicians, physicians, and pharmacy technicians.

With over 560,000 jobs, this group accounted for 19% of all jobs in 2002, and was just slightly smaller than the services group. In 2012, the professional group is expected to surpass services to become the largest category. In 2012, professional occupations are projected to have over 675,000 jobs, or 20% of total jobs.

In addition, with growth of more than 115,000 new jobs, this group will lead in job creation. Also, this category will have with the second highest total job openings with about 225,000.

Professional occupations are concentrated in three of Wisconsin's largest industries - educational services, hospitals, and ambulatory health care services. Overall, teaching and health care occupations account for 54% of the employment in this category.

Three particular occupations - registered nurses, elementary school teachers, and secondary school teachers - make up nearly 20% of total professional employment. These three occupations are also projected to add 18% of the group's new jobs and have 20% of total job openings.

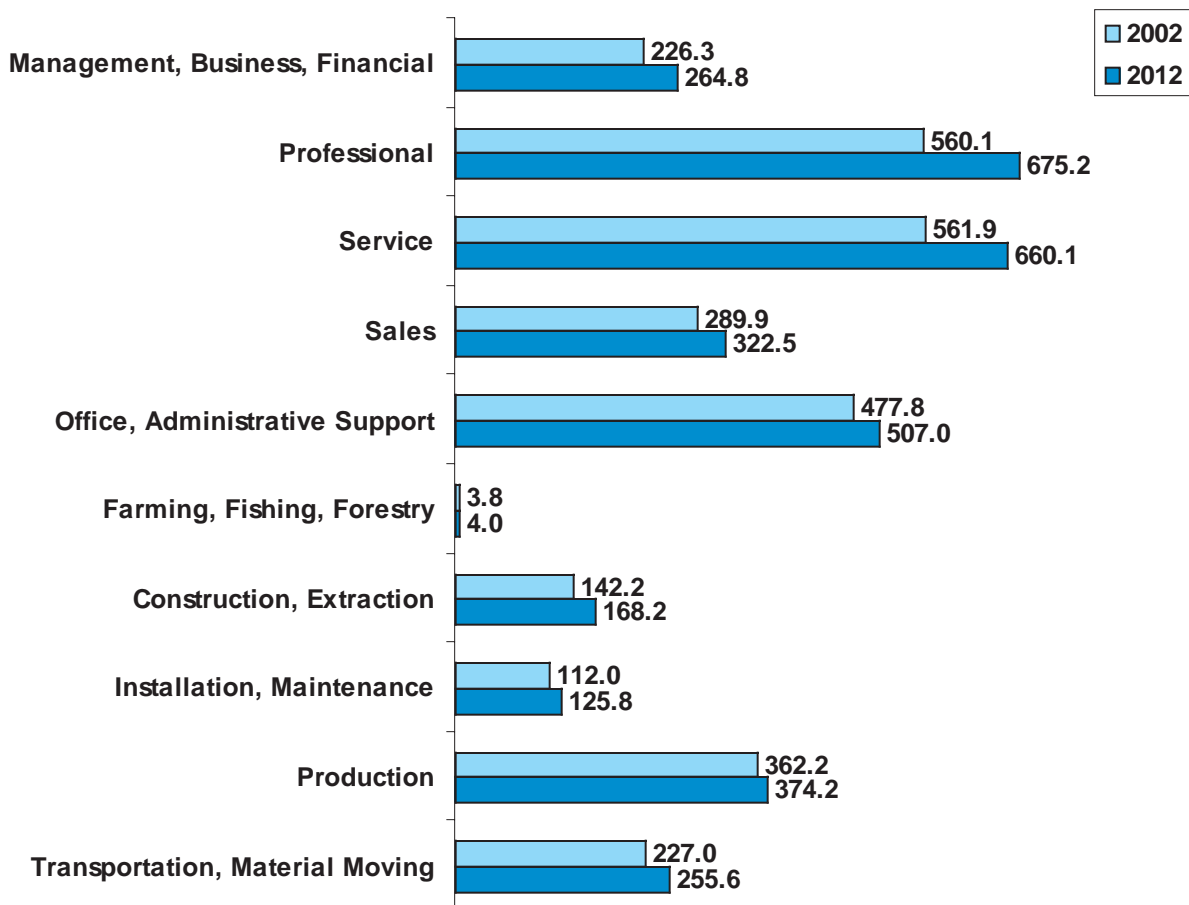
### Service Occupations Lead in Replacement Openings and Total Job Openings

Service occupations are another important category. This group is composed of occupations such as home health aides, police officers, chefs, janitors, cosmetologists, flight attendants, and child care workers.

While this group had the largest number of jobs in 2002, it is expected to fall to second place in 2012. In 2002 this group had approximately 562,000 jobs. Between 2002 and 2012, the group will add about 98,000 new jobs growing to a total of just over 660,000 jobs.

This category is expected to have about 160,000 jobs open due to replacements which is the largest number among the broad groups. As a result of this large number of replacement openings, in combination with a sizeable number of new jobs, service occupations will also have the greatest number of total job openings with 258,000.

**Figure 2-3: Employment by Broad Occupational Group, 2002 and 2012**  
(in thousands)



Information derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data. Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau was also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

### **Service Occupations Lead in Replacement Openings and Total Job Openings (continued)**

Service occupations are concentrated in food services and drinking places; local government; and nursing and residential care facilities. The three largest occupations are janitors and cleaners; waiters and waitresses, and combined food preparation and serving workers. Within the services category, these occupations are expected to account for 25% of total 2012 employment, 23% of new jobs, and 33% of replacement openings.

### **Production Occupations have the Slowest Growth**

Production occupations were the fourth largest occupational group in 2002 and will remain in fourth place in 2012. However, production occupations are expected to be the slowest growing group with a 3.3% growth rate. With an increase of about 12,000 jobs, employment in this group is expected to increase from about 362,000 to 374,000 jobs. In addition to the 12,000 new jobs, there will also be 87,000 openings due to replacement needs.

Production occupations are concentrated in manufacturing. In 2012, the largest employers of production workers are expected to be fabricated metal products; machinery manufacturing; and food manufacturing. These three industries will employ one out of every three production workers.

The three largest production occupations are team assemblers; production workers helpers; and packaging and filling machine operators and tenders. Within the production group, these occupations account for 22% of 2012 employment, 21% of new jobs, and 23% of replacement openings.

## **EMPLOYMENT TRENDS IN SELECTED OCCUPATIONS**

Employment in the ten broad occupational categories is further broken down among 765 occupations. The entire table of occupations is found at the end of this chapter in figure 2-11. The following sections concentrate on occupations with the largest employment in 2012, most new jobs, most total job openings, and fastest growth rates. Also, there are examinations of occupations expected to experience net employment declines and occupations among the self-employed.

### **Largest Occupations in 2012**

Figure 2-4 lists the thirty occupations expected to have the greatest number of jobs in 2012. The largest occupation, retail salespersons, will account for about 94,000 jobs in 2012. The 30th largest occupation, first-line supervisors and managers of production and operating workers will have nearly 26,000 jobs. Overall, these thirty occupations are expected to account for 39% of total 2012 employment and 41% of job openings from 2002 to 2012.

These thirty occupations represent all of the broad occupational groups, except for farming, fishing, and forestry. Eight are in office and administrative support. Five are service occupations. Four each are in professional and related; sales and related; and transportation and moving occupations. Most of the jobs on the list can be learned through on-the-job training.



**Figure 2-4: Largest Occupations, Ranked by 2012 Projected Employment**

Occupational Title	2012 Projected Employment <sup>(1)</sup>	2002-2012 Total Job Openings <sup>(1)</sup>	Education and Training Path <sup>(2)</sup>	Average Annual Salary
Retail Salespersons	94,330	40,740	Short-term OJT	\$21,430
Cashiers	75,270	40,580	Short-term OJT	16,380
Registered Nurses	61,130	24,350	Assoc or Bach degree <sup>(3)</sup>	49,180
Truck Drivers, Heavy and Tractor-Trailer	61,120	18,310	Moderate-term OJT	36,940
Janitors and Cleaners, Except Maids/Housekeeping Cleaners	60,420	17,700	Short-term OJT	20,940
Office Clerks, General	55,280	15,830	Short-term OJT	23,310
Combined Food Preparation/Serving Wrks, Inc Fast Food	53,510	28,260	Short-term OJT	15,700
Nursing Aides, Orderlies, and Attendants	52,280	15,800	Short-term OJT	21,710
Waiters and Waitresses	51,120	29,280	Short-term OJT	15,260
Customer Service Representatives	47,400	13,990	Moderate-term OJT	28,830
Laborers and Freight, Stock, and Material Movers, Hand	47,010	16,300	Short-term OJT	22,570
Bookkeeping, Accounting, and Auditing Clerks	45,380	9,300	Moderate-term OJT	27,330
Team Assemblers	44,920	11,850	Moderate-term OJT	26,190
Secretaries, Except Legal, Medical, and Executive	41,100	8,400	Moderate-term OJT	25,520
Sales Reps, Wholesale/Mfg, Ex Technical/Scientific Products	40,280	15,410	Moderate-term OJT	53,330
Carpenters	36,650	10,110	Long-term OJT	37,490
Executive Secretaries and Administrative Assistants	34,830	8,410	Moderate-term OJT	31,750
General and Operations Managers	34,270	10,190	Degree & work exp	90,040
First-Line Supervisors/Managers of Retail Sales Workers	33,890	8,180	Work experience	36,190
Elementary School Teachers, Except Special Education	32,870	9,690	Bachelor's degree	42,330
Maids and Housekeeping Cleaners	31,940	9,590	Short-term OJT	17,430
Receptionists and Information Clerks	31,160	12,750	Short-term OJT	21,840
Maintenance and Repair Workers, General	31,130	9,090	Long-term OJT	33,040
Teacher Assistants	30,310	9,460	Associate degree	22,050
Truck Drivers, Light or Delivery Services	30,210	7,490	Short-term OJT	23,860
Stock Clerks and Order Fillers	29,880	11,510	Short-term OJT	20,820
First-Line Supervisors/Mgrs Office/Admin Support Wrks	29,660	7,540	Work experience	43,680
Secondary School Teachers, Except Special/Vocational Ed	28,180	10,380	Bachelor's degree	42,540
Packers and Packagers, Hand	27,360	7,570	Short-term OJT	20,250
First-Line Supervisors/Mgrs Production/Operating Workers	25,790	7,580	Work experience	49,040

**Notes:**

- (1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.
- (2) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.
- (3) Depending upon the specific position and employer either an associate or bachelor's degree are most common.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development



### Occupations Adding the Most New Jobs

Figure 2-5 shows the thirty occupations projected to add the most new jobs by 2012. The number of new jobs anticipated range from registered nurses, which is projected to add nearly 15,000 jobs to hand packers and packagers which is expected to add 3,000 positions.

Overall these thirty occupations are expected to add 178,000 new jobs to Wisconsin's labor market. These positions account for 45% of the total new jobs anticipated. Eight of the occupations require at least two-years of college, while twenty require short- or moderate-term on-the-job training.

### Occupations with the Most Job Openings

Figure 2-6 shows the thirty occupations projected to have the most job openings. Job openings consist of new jobs plus replacement openings.

Replacement openings exist because people have retired, died, or otherwise left the work force. Replacements also include openings arising from people who permanently change occupations. For example, a person who has a job as a nursing aide leaves that occupation and becomes a security guard.

Replacements do not include openings that exist because people changed employers but remained in the same occupation. For example, if a person moves from being a waiter/waitress at Cool Cafe to being a waiter/waitress at Fun Foods, the vacancy created at Cool Cafe is not included as a replacement opening.

Overall these thirty occupations are expected to have over 453,000 openings. These positions represent 41% of Wisconsin's projected job openings. Retail salespersons top the list with almost 41,000 openings. First-line supervisors and managers of retail sales workers rounds out the list with 8,200 openings.

Several of the occupations on the list, such as cashiers, waiters/waitresses, and stock clerks, are lower paying jobs that are learned through on-the-job training. Many people who take these jobs later move on to a higher paying occupation that also offers more career opportunities. As a result, these occupations have a large number of job openings due to replacements.

In addition, most of the occupations on the list have more openings from replacements than new jobs. The exceptions are registered nurses; heavy truck drivers; nursing aides, orderlies, and attendants; customer service representatives; receptionists and information clerks; and personal and home care aides.

### Fastest Growing Occupations with at Least 500 Jobs in 2012

Figure 2-7 lists the thirty fastest growing occupations, based on percentage change in employment between 2002 and 2012. The larger the percentage change the faster the occupation is growing. To avoid listing occupations with a large percentage change but only a few new jobs, only occupations with at least 500 jobs in 2012 are included in the rankings.

Medical assistants are projected to grow the fastest. This occupation is expected to increase from 3,550 to 6,110 jobs for a change of 58 percent. The thirtieth occupation is postsecondary communications teachers. This occupation is expected to grow from 830 to 1,120 jobs, a change of 35 percent.

The list is dominated by occupations linked to health care and computers. Sixteen occupations are health care related. Five are computer related. In contrast to the lists of the occupations with the largest employment, most job openings, and most new jobs, most (twenty) of the fastest growing occupations require at least an associate degree and are relatively high paying.

**Figure 2-5: Occupations Adding the Most New Jobs, 2002 to 2012**

Occupation Title	2002-2012 New Jobs <sup>(1)</sup>	Education and Training Path <sup>(2)</sup>	Average Annual Salary
Registered Nurses	14,600	Assoc or Bach degree <sup>(3)</sup>	\$49,180
Nursing Aides, Orderlies, and Attendants	10,310	Short-term OJT	21,710
Retail Salespersons	10,140	Short-term OJT	21,430
Truck Drivers, Heavy and Tractor-Trailer	9,950	Moderate-term OJT	36,940
Combined Food Preparation/Serving Workers, Including Fast Food	8,950	Short-term OJT	15,700
Customer Service Representatives	8,150	Moderate-term OJT	28,830
Personal and Home Care Aides	7,990	Short-term OJT	18,840
Cashiers	7,720	Short-term OJT	16,380
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	7,710	Short-term OJT	20,940
Receptionists and Information Clerks	6,770	Short-term OJT	21,840
Sales Reps, Wholesale/Mfg, Except Technical/Scientific Products	6,560	Moderate-term OJT	53,330
Waiters and Waitresses	6,140	Short-term OJT	15,260
Home Health Aides	5,950	Short-term OJT	20,380
Truck Drivers, Light or Delivery Services	5,190	Short-term OJT	23,860
Carpenters	4,950	Long-term OJT	37,490
Computer Systems Analysts	4,970	Bachelor's degree	68,780
Office Clerks, General	4,610	Short-term OJT	23,310
General and Operations Managers	4,580	Degree & work exp	90,040
Teacher Assistants	4,460	Associate degree	22,050
Maintenance and Repair Workers, General	3,860	Long-term OJT	33,040
Accountants and Auditors	3,790	Bachelor's degree	55,100
Maids and Housekeeping Cleaners	3,650	Short-term OJT	17,430
Electricians	3,550	Long-term OJT	43,850
Social and Human Service Assistants	3,600	Moderate-term OJT	25,750
Medical Assistants	3,550	Moderate-term OJT	25,550
Secondary School Teachers, Except Special/Vocational Education	3,410	Bachelor's degree	42,540
Landscaping and Groundskeeping Workers	3,390	Short-term OJT	23,010
Preschool Teachers, Except Special Education	3,210	Bachelor's degree	21,050
Elementary School Teachers, Except Special Education	3,140	Bachelor's degree	42,330
Packers and Packagers, Hand	3,020	Short-term OJT	20,250

**Notes:**

- (1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.
- (2) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.
- (3) Depending upon the specific position and employer either an associate or bachelor's degree are most common.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

**Figure 2-6: Occupations with the Most Job Openings, 2002 to 2012**

Occupation Title	2002-2012 Job Openings <sup>(1)</sup>	Education and Training Path <sup>(2)</sup>	Average Annual Salary
Retail Salespersons	40,740	Short-term OJT	\$21,430
Cashiers	40,590	Short-term OJT	16,380
Waiters and Waitresses	29,290	Short-term OJT	15,260
Combined Food Preparation/Serving Workers, Inc Fast Food	28,260	Short-term OJT	15,700
Registered Nurses	24,340	Assoc or bach degree <sup>(3)</sup>	49,180
Truck Drivers, Heavy and Tractor-Trailer	18,310	Moderate-term OJT	36,940
Janitors and Cleaners, Except Maids/Housekeeping Cleaners	17,710	Short-term OJT	20,940
Laborers and Freight, Stock, and Material Movers, Hand	16,300	Short-term OJT	22,570
Office Clerks, General	15,830	Short-term OJT	23,310
Nursing Aides, Orderlies, and Attendants	15,800	Short-term OJT	21,710
Sales Reps, Wholesale/Mfg, Except Technical/Scientific Products	15,420	Moderate-term OJT	53,330
Customer Service Representatives	13,990	Moderate-term OJT	28,830
Receptionists and Information Clerks	12,760	Short-term OJT	21,840
Team Assemblers	11,850	Moderate-term OJT	26,190
Stock Clerks and Order Fillers	11,510	Short-term OJT	20,820
Personal and Home Care Aides	10,820	Short-term OJT	18,840
Secondary School Teachers, Except Special/Vocational Education	10,380	Bachelor's degree	42,540
Carpenters	10,180	Long-term OJT	37,490
General and Operations Managers	10,110	Degree & work exp	90,040
Bartenders	9,850	Short-term OJT	17,600
Elementary School Teachers, Except Special Education	9,700	Bachelor's degree	42,330
Maids and Housekeeping Cleaners	9,580	Short-term OJT	17,430
Teacher Assistants	9,460	Associate degree	22,050
Bookkeeping, Accounting, and Auditing Clerks	9,300	Moderate-term OJT	27,330
Maintenance and Repair Workers, General	9,090	Long-term OJT	33,040
Food Preparation Workers	8,740	Short-term OJT	17,410
Executive Secretaries and Administrative Assistants	8,410	Moderate-term OJT	31,750
Secretaries, Except Legal, Medical, and Executive	8,400	Moderate-term OJT	25,520
Tellers	8,330	Short-term OJT	20,120
First-Line Supervisors/Managers of Retail Sales Workers	8,180	Work experience	36,190

**Notes:**

- (1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.
- (2) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.
- (3) Depending upon the specific position and employer either an associate or bachelor's degree are most common.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.  
 Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

**Figure 2-7: Fastest Growing Occupations<sup>(1)</sup>, 2002 to 2012**

<b>Occupational Title</b>	<b>2002-2012 Percent Change<sup>(2)</sup></b>	<b>2002-2012 New Jobs<sup>(2)</sup></b>	<b>Education and Training Path<sup>(3)</sup></b>	<b>Average Annual Salary</b>
Medical Assistants	58.1%	3,550	Moderate-term OJT	\$25,550
Network Systems and Data Communications Analysts	56.4%	1,730	Bachelor's degree	55,620
Medical Records and Health Information Technicians	54.4%	2,120	Associate degree	25,580
Physician Assistants	52.2%	590	Bachelor's degree	65,910
Computer Software Engineers, Systems Software	51.4%	1,110	Bachelor's degree	65,950
Home Health Aides	50.4%	5,950	Short-term OJT	20,380
Physical Therapist Aides	46.3%	380	Short-term OJT	22,470
Social and Human Service Assistants	46.1%	3,600	Moderate-term OJT	25,750
Personal and Home Care Aides	45.3%	7,990	Short-term OJT	18,840
Respiratory Therapy Technicians	44.3%	310	Postsec vocational training	36,610
Respiratory Therapists	43.6%	610	Associate degree	41,540
Computer Software Engineers, Applications	43.0%	2,090	Bachelor's degree	65,240
Physical Therapist Assistants	42.7%	560	Associate degree	33,980
Dental Hygienists	42.5%	1,550	Associate degree	51,200
Dental Assistants	42.5%	2,420	Moderate-term OJT	25,490
Veterinary Technologists and Technicians	41.9%	540	Associate degree	24,380
Radiation Therapists	40.9%	180	Associate degree	50,320
Hazardous Materials Removal Workers	40.9%	360	Moderate-term OJT	43,530
Cardiovascular Technologists and Technicians	40.3%	250	Associate degree	36,270
Personal Financial Advisors	39.6%	890	Bachelor's degree	70,050
Computer Systems Analysts	38.5%	4,970	Bachelor's degree	68,780
Occupational Therapist Assistants	37.7%	230	Associate degree	33,750
Heating/Air Conditioning/Refrigeration Mechanics/Installers	37.0%	1,520	Long-term OJT	38,300
Environmental Engineers	36.5%	380	Bachelor's degree	64,260
Foreign Language and Literature Teachers, Postsecondary	35.8%	190	Doctoral degree	46,020
Surgical Technologists	35.7%	610	Postsec vocational training	35,470
Psychology Teachers, Postsecondary	35.2%	190	Doctoral degree	48,050
Education Teachers, Postsecondary	35.1%	460	Doctoral degree	46,930
Database Administrators	35.0%	570	Bachelor's degree	54,730
Communications Teachers, Postsecondary	34.9%	290	Doctoral degree	51,060

**Notes:**

- (1) Only occupations with projected 2012 employment of 500 or more are included.
- (2) Employment is rounded to the nearest ten. Numbers may not add due to rounding.
- (3) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

### **Fastest Growing Occupations with at Least 500 Jobs in 2012 (continued)**

Although the occupations in this list are growing at a fast rate, it should be noted these thirty occupations will represent only 4% of total employment in 2012, 12% of new jobs, and 6% of total job openings.

### **Occupations Losing the Most Jobs**

The thirty occupations expected to lose the most jobs between 2002 and 2012 are illustrated in figure 2-8. About 15,400 jobs will be lost due to employment declines in these thirty occupations. These occupations account for 82% of the 18,700 jobs expected to be lost in Wisconsin overall. Thirteen of the positions are office and administrative support occupations. Eleven of the occupations are in production.

The occupation losing the most jobs is secretaries, except legal, medical, and executive. This occupation is expected to lose nearly 2,800 jobs. Thirtieth on the list is shoe machine operators and tenders projected to lose 120 jobs.

Although total employment in these occupations will be decreasing, it is important to note an estimated 55,000 job openings will still exist in this group. These openings will result from retirements and other permanent exits from the occupations.

### **OCCUPATIONS AMONG THE SELF-EMPLOYED**

Self-employed workers are defined as owners of nonfarm, unincorporated, businesses who rely on their business' profits for their main source of income.

People who earn most of their income from a nonfarm wage or salary job and who also own an unincorporated business are not included as self-employed. The positions these people hold are counted under their wage or salary job.

Also excluded from self-employed are owners of nonfarm incorporated businesses. These people are counted under the function they perform for the corporation (such as general manager, financial manager, etc.)

In 2002 there were an estimated 173,130 self-employed people. By 2012, the number is expected to decline by 1,370 to 171,760.

Figure 2-9 lists the thirty occupations expected to add the most self-employed. Massage therapists will add the most jobs. This group is expected to grow from 1,760 to 2,270. Driver/sales workers, ranked 30th, will grow from 960 to 1,030. Overall these thirty occupations will account for about 26% of the jobs held by the self-employed in 2012.

The occupations expected to lose the most self-employed between 2002 and 2012 are listed in figure 2-10. Door-to-door sales workers, news and street vendors, and related workers will decline the most dropping from 4,060 to 2,740. Real estate sales agents and coaches and scouts will each lose about 50 self-employed positions.

**Figure 2-8: Occupations Losing the Most Jobs, 2002 to 2012**

Occupational Title	Estimated Employment <sup>(1)</sup>		Net Job Loss	Education and Training Path <sup>(2)</sup>	Average Annual Salary
	2002	2012			
Secretaries, Except Legal, Medical, and Executive	43,870	41,100	(2,770)	Moderate-term OJT	\$25,520
Word Processors and Typists	4,020	2,320	(1,700)	Moderate-term OJT	26,710
Door-To-Door Sales Wrks, News/Street Vendors/Related Wrks	5,260	4,000	(1,260)	Short-term OJT	17,550
Stock Clerks and Order Fillers	31,090	29,880	(1,210)	Short-term OJT	20,820
Electrical and Electronic Equipment Assemblers	7,110	6,170	(940)	Short-term OJT	28,660
Team Assemblers	45,850	44,920	(930)	Moderate-term OJT	26,190
Telemarketers	6,180	5,550	(630)	Short-term OJT	23,150
Computer Operators	3,370	2,770	(600)	Moderate-term OJT	30,470
Prepress Technicians and Workers	3,630	3,150	(480)	Long-term OJT	34,570
Postal Service Mail Sort/Process/Processing Machine Operators	4,620	4,150	(470)	Short-term OJT	36,870
Loan Interviewers and Clerks	3,220	2,780	(440)	Short-term OJT	27,000
Travel Agents	1,950	1,530	(420)	Postsec vocational	27,670
Telephone Operators	660	260	(400)	Short-term OJT	28,420
Data Entry Keyers	6,830	6,520	(310)	Moderate-term OJT	22,770
Announcers	2,030	1,730	(300)	Long-term OJT	30,550
Mixing and Blending Machine Setters, Operators, and Tenders	2,870	2,610	(260)	Moderate-term OJT	30,160
Engine and Other Machine Assemblers	3,390	3,160	(230)	Short-term OJT	33,930
Legislators	5,240	5,030	(210)	Degree & work exp	22,380
Eligibility Interviewers, Government Programs	1,420	1,210	(210)	Moderate-term OJT	33,080
Coil Winders, Tapers, and Finishers	2,630	2,430	(200)	Short-term OJT	29,570
Meter Readers, Utilities	1,010	820	(190)	Short-term OJT	30,980
Textile Knitting/Weaving Machine Setters/Operators/Tenders	520	350	(170)	Long-term OJT	27,000
Parts Salespersons	4,960	4,800	(160)	Moderate-term OJT	27,550
File Clerks	4,960	4,810	(150)	Short-term OJT	21,540
Mail Clerks/Mail Machine Operators, Except Postal Service	3,340	3,190	(150)	Short-term OJT	22,350
Sewing Machine Operators	5,320	5,170	(150)	Moderate-term OJT	21,680
Welding/Soldering/Brazing Machine Setters/Operators/Tenders	2,530	2,390	(140)	Moderate-term OJT	32,600
Foundry Mold and Coremakers	1,370	1,250	(120)	Moderate-term OJT	27,430
Brokerage Clerks	1,100	980	(120)	Moderate-term OJT	29,590
Shoe Machine Operators and Tenders	460	340	(120)	Moderate-term OJT	19,790

**Notes:**

- (1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.
- (2) Education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development



**Figure 2-9: Occupations with the Greatest Growth in Self-Employment, 2002 to 2012**

Occupational Title	Estimated Employment <sup>(1)</sup>		Growth	Percent Change
	2002	2012		
Massage Therapists	1,760	2,270	510	29.0%
First-Line Supervisors/Managers of Construction Trades and Extraction Workers	2,020	2,470	450	22.3%
Computer Systems Analysts	630	970	340	54.0%
Construction Managers	1,970	2,300	330	16.8%
Network Systems and Data Communications Analysts	550	870	320	58.2%
Personal and Home Care Aides	1,200	1,450	250	20.8%
Graphic Designers	1,420	1,660	240	16.9%
Personal Financial Advisors	790	1,020	230	29.1%
Writers and Authors	1,590	1,810	220	13.8%
Roofers	1,180	1,390	210	17.8%
Painters, Construction and Maintenance	3,080	3,280	200	6.5%
Carpet Installers	1,160	1,360	200	17.2%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	550	730	180	32.7%
Hairdressers, Hairstylists, and Cosmetologists	7,950	8,120	170	2.1%
Management Analysts	1,620	1,790	170	10.5%
First-Line Supervisors/Managers Landscaping/Lawn Service/Groundskeeping Workers	810	980	170	21.0%
Accountants and Auditors	1,690	1,840	150	8.9%
Chiropractors	950	1,090	140	14.7%
Appraisers and Assessors of Real Estate	540	670	130	24.1%
Registered Nurses	350	480	130	37.1%
Clinical, Counseling, and School Psychologists	820	940	120	14.6%
Nursing Aides, Orderlies, and Attendants	590	690	100	16.9%
Computer Specialists, All Other	150	250	100	66.7%
Photographers	1,030	1,120	90	8.7%
Public Relations Specialists	250	340	90	36.0%
Property, Real Estate, and Community Association Managers	810	890	80	9.9%
Floor Layers, Except Carpet, Wood, and Hard Tiles	570	650	80	14.0%
Sales Representatives, Wholesale/Manufacturing, Except Technical/Scientific Products	1,400	1,470	70	5.0%
Brickmasons and Blockmasons	1,160	1,230	70	6.0%
Driver/Sales Workers	960	1,030	70	7.3%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development

**Figure 2-10: Occupations with the Greatest Decline in Self-Employment, 2002 to 2012**

Occupational Title	Estimated Employment <sup>(1)</sup>		Job Loss	Percent Change
	2002	2012		
Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	4,060	2,740	(1,320)	-32.5%
First-Line Supervisors/Managers of Retail Sales Workers	9,660	8,700	(960)	-9.9%
Bookkeeping, Accounting, and Auditing Clerks	3,060	2,180	(880)	-28.8%
Retail Salespersons	2,980	2,390	(590)	-19.8%
Child Care Workers	8,240	7,820	(420)	-5.1%
Maids and Housekeeping Cleaners	2,440	2,060	(380)	-15.6%
First-Line Supervisors/Managers of Non-Retail Sales Workers	3,490	3,120	(370)	-10.6%
First-Line Supervisors/Managers of Personal Service Workers	2,180	1,870	(310)	-14.2%
Lawyers	2,630	2,410	(220)	-8.4%
Managers, All Other	5,520	5,310	(210)	-3.8%
Cashiers	550	370	(180)	-32.7%
Carpenters	8,950	8,790	(160)	-1.8%
Real Estate Brokers	1,280	1,120	(160)	-12.5%
Cabinetmakers and Bench Carpenters	440	310	(130)	-29.5%
Physicians and Surgeons, All Other	370	240	(130)	-35.1%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	1,830	1,710	(120)	-6.6%
Automotive Service Technicians and Mechanics	2,480	2,370	(110)	-4.4%
Receptionists and Information Clerks	280	190	(90)	-32.1%
Secretaries, Except Legal, Medical, and Executive	650	570	(80)	-12.3%
Team Assemblers	460	380	(80)	-17.4%
Bartenders	280	200	(80)	-28.6%
Wholesale and Retail Buyers, Except Farm Products	260	180	(80)	-30.8%
Word Processors and Typists	230	150	(80)	-34.8%
Dentists	1,670	1,600	(70)	-4.2%
Industrial Machinery Mechanics	280	210	(70)	-25.0%
Preschool Teachers, Except Special Education	230	160	(70)	-30.4%
Sales and Related Workers, All Other	370	310	(60)	-16.2%
Installation, Maintenance, and Repair Workers, All Other	190	130	(60)	-31.6%
Real Estate Sales Agents	1,550	1,500	(50)	-3.2%
Coaches and Scouts	830	780	(50)	-6.0%

**Notes:**

(1) Employment is rounded to the nearest ten. Numbers may not add due to rounding.

Information is derived using 2002 CES (3/03 Benchmark), 2002 QCEW, and 2003 OES data.

Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau is also used.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development



## DETAILED EMPLOYMENT TRENDS FOR ALL OCCUPATIONS

Figure 2-11 provides a detailed listing of occupational trends for all 765 occupations. The table shows which one of the ten broad occupational groups a particular occupation falls under, gives the estimated employment change in each occupation between 2002 and 2012, and lists the projected number of average annual openings in each occupation. Also included for each occupation are the typical education and training path along with wage information.

If you would like an electronic version of this table, it is available at  
[http://dwd.wisconsin.gov/oea/longterm\\_projections.htm](http://dwd.wisconsin.gov/oea/longterm_projections.htm)

## ADDITIONAL RESOURCES IN THE APPENDICES

An alphabetical index of all 765 occupations is found in appendix 1. This appendix lists the page number of the detailed occupational trend for each occupation in figure 2-11. In addition, appendix 1 includes the complete occupational title for each occupation. Due to the length of many of the titles they are abbreviated in figures 2-1 through 2-11.

More information about Department of Workforce Development resources for job seekers, counselors, and employers is found in appendix 2.

Appendix 3 describes the methodology used to develop the projections.

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**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
<b>00-0000</b>	<b>Total, All Occupations</b>	<b>2,963,190</b>	<b>3,357,440</b>	<b>394,250</b>	<b>13.3%</b>	<b>39,430</b>	<b>70,570</b>	<b>110,000</b>
<b>11-0000</b>	<b>Management Occupations</b>	<b>127,200</b>	<b>146,290</b>	<b>19,090</b>	<b>15.0%</b>	<b>1,910</b>	<b>2,390</b>	<b>4,300</b>
11-1000	Top Executives	40,330	45,470	5,140	12.7%	510	730	1,240
11-1011	Chief Executives	5,400	6,170	770	14.3%	80	100	180
11-1021	General and Operations Mgrs	29,690	34,270	4,580	15.4%	460	560	1,020
11-1031	Legislators	5,240	5,030	(210)	-4.0%	0	70	70
11-2000	Ad/Mrkt/Prom/PR & Sales Mgrs	10,340	12,700	2,360	22.8%	240	190	430
11-2011	Advertising/Promotions Mgrs	1,690	2,010	320	18.9%	30	30	60
11-2021	Marketing Mgrs	2,360	2,760	400	16.9%	40	40	80
11-2022	Sales Mgrs	5,190	6,640	1,450	27.9%	150	100	250
11-2031	Public Relations Mgrs	1,110	1,300	190	17.1%	20	20	40
11-3000	Operations Specialties Managers	28,000	32,860	4,860	17.4%	490	500	990
11-3011	Administrative Services Mgrs	4,240	4,870	630	14.9%	60	80	140
11-3021	Computer/Information Systems Mgrs	4,460	5,880	1,420	31.8%	140	80	220
11-3031	Financial Mgrs	7,450	8,690	1,240	16.6%	120	110	230
11-3040	Human Resources Mgrs	2,980	3,520	540	18.1%	60	50	110
11-3051	Industrial Production Mgrs	5,180	5,710	530	10.2%	50	100	150
11-3061	Purchasing Mgrs	1,950	2,020	70	3.6%	10	40	50
11-3071	Transportation/Storage/Distrib Mgrs	1,750	2,150	400	22.9%	40	30	70
11-9000	Other Management Occupations	48,530	55,270	6,740	13.9%	670	980	1,650
11-9011	Farm/Ranch/Other Ag Mgrs	70	100	30	42.9%	0	0	0
11-9012	Farmers/Ranchers	0	0	0	0.0%	0	0	0
11-9021	Construction Mgrs	4,340	5,140	800	18.4%	80	80	160
11-9031	Educ Admin, Preschool/Child Care	1,950	2,480	530	27.2%	50	50	100
11-9032	Educ Admin, Elem/Sec School	4,680	5,430	750	16.0%	80	120	200
11-9033	Educ Admin, Postsecondary	3,530	4,270	740	21.0%	70	90	160
11-9039	Educ Admin, All Other	370	430	60	16.2%	10	10	20
11-9041	Engineering Mgrs	3,480	3,790	310	8.9%	30	70	100
11-9051	Food Service Mgrs	6,420	6,940	520	8.1%	50	110	160
11-9061	Funeral Directors	700	760	60	8.6%	10	20	30
11-9071	Gaming Mgrs	360	330	(30)	-8.3%	0	10	10
11-9081	Lodging Mgrs	1,690	1,800	110	6.5%	10	30	40
11-9111	Medical/Health Services Mgrs	4,340	5,830	1,490	34.3%	150	90	240
11-9121	Natural Sciences Mgrs	520	560	40	7.7%	0	10	10
11-9131	Postmasters/Mail Superintendents	670	660	(10)	-1.5%	0	10	10
11-9141	Prop/RE/Community Assoc Mgrs	1,980	2,250	270	13.6%	30	40	70
11-9151	Social/Community Service Mgrs	2,590	3,120	530	20.5%	50	50	100
11-9199	Mgrs, All Other	10,840	11,380	540	5.0%	50	210	260

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
<b>00-0000</b>	<b>Total, All Occupations</b>		<b>33,980</b>	<b>9.35 - 19.95</b>
<b>11-0000</b>	<b>Management Occupations</b>		<b>76,730</b>	<b>22.18 - 45.26</b>
11-1000	Top Executives		NA	NA
11-1011	Chief Executives	Degree & work experience	148,670	45.97 - #
11-1021	General and Operations Mgrs	Degree & work experience	90,040	24.51 - 55.13
11-1031	Legislators	Degree & work experience	22,380	6.33 - 10.53
11-2000	Ad/Mrkt/Prom/PR & Sales Mgrs		NA	NA
11-2011	Advertising/Promotions Mgrs	Degree & work experience	61,210	17.87 - 37.30
11-2021	Marketing Mgrs	Degree & work experience	88,070	27.29 - 51.53
11-2022	Sales Mgrs	Degree & work experience	84,940	26.19 - 50.49
11-2031	Public Relations Mgrs	Degree & work experience	61,310	19.44 - 35.19
11-3000	Operations Specialties Managers		NA	NA
11-3011	Administrative Services Mgrs	Degree & work experience	66,930	21.46 - 40.45
11-3021	Computer/Information Systems Mgrs	Degree & work experience	85,590	32.06 - 47.88
11-3031	Financial Mgrs	Degree & work experience	81,900	26.60 - 47.06
11-3040	Human Resources Mgrs	Degree & work experience	68,050	23.13 - 39.52
11-3051	Industrial Production Mgrs	Bachelor's degree	72,370	25.79 - 41.85
11-3061	Purchasing Mgrs	Degree & work experience	67,230	21.96 - 38.98
11-3071	Transportation/Storage/Distrib Mgrs	Work experience in related occ	67,320	24.27 - 39.73
11-9000	Other Management Occupations		NA	NA
11-9011	Farm/Ranch/Other Ag Mgrs	Degree & work experience	44,300	13.26 - 26.27
11-9012	Farmers/Ranchers	Long-term on-the-job training	NA	NA
11-9021	Construction Mgrs	Bachelor's degree	73,690	24.86 - 40.60
11-9031	Educ Admin, Preschool/Child Care	Degree & work experience	37,880	12.57 - 18.91
11-9032	Educ Admin, Elem/Sec School	Degree & work experience	77,910	NA
11-9033	Educ Admin, Postsecondary	Degree & work experience	67,620	23.41 - 39.08
11-9039	Educ Admin, All Other	Degree & work experience	NA	NA
11-9041	Engineering Mgrs	Degree & work experience	87,070	33.33 - 48.47
11-9051	Food Service Mgrs	Work experience in related occ	38,830	14.01 - 22.30
11-9061	Funeral Directors	Associate degree	53,300	17.60 - 30.31
11-9071	Gaming Mgrs	Work experience in related occ	53,880	20.16 - 29.18
11-9081	Lodging Mgrs	Work experience in related occ	38,120	13.03 - 21.78
11-9111	Medical/Health Services Mgrs	Degree & work experience	68,880	23.88 - 37.69
11-9121	Natural Sciences Mgrs	Degree & work experience	92,410	32.75 - 53.57
11-9131	Postmasters/Mail Superintendents	Work experience in related occ	52,200	21.89 - 27.40
11-9141	Prop/RE/Community Assoc Mgrs	Bachelor's degree	62,040	14.96 - 34.79
11-9151	Social/Community Service Mgrs	Bachelor's degree	46,250	16.76 - 26.58
11-9199	Mgrs, All Other	Work experience in related occ	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replace-ments <sup>(2)</sup>	Total <sup>(3)</sup>
<b>13-0000</b>	<b>Business/Financial Operations Occhs</b>	<b>99,070</b>	<b>118,530</b>	<b>19,460</b>	<b>19.6%</b>	<b>1,950</b>	<b>1,780</b>	<b>3,730</b>
13-1000	Business Operations Specialists	58,740	70,420	11,680	19.9%	1,170	1,060	2,230
13-1011	Agents/Bus Mgrs Artsts/Prfrms/Ath	90	110	20	22.2%	0	0	0
13-1021	Purch Agents/Buyers Farm Prod	360	390	30	8.3%	0	10	10
13-1022	Whole/Retail Buyers Ex Farm Prod	3,010	3,170	160	5.3%	20	80	100
13-1023	Purch Agents Ex Whole/Retail/Farm	6,030	6,750	720	11.9%	70	150	220
13-1031	Claims Adjust/Exam/Investigators	6,980	8,000	1,020	14.6%	100	90	190
13-1032	Insurance Appraisers Auto Damage	350	390	40	11.4%	0	0	0
13-1041	Compl Offcrs Ex Ag/Cnst/Hlth/Sfty/Tr	2,670	3,100	430	16.1%	40	60	100
13-1051	Cost Estimators	4,340	5,250	910	21.0%	90	100	190
13-1061	Emergency Mgmt Specialists	450	590	140	31.1%	10	10	20
13-1071	Empl/Recruit/Placement Specialists	3,750	4,660	910	24.3%	90	60	150
13-1072	Compen/Benefits/Job Specialists	2,010	2,540	530	26.4%	50	30	80
13-1073	Training/Development Specialists	3,810	4,760	950	24.9%	100	60	160
13-1111	Management Analysts	6,170	7,350	1,180	19.1%	120	80	200
13-1121	Meeting and Convention Planners	940	1,070	130	13.8%	10	20	30
13-1199	Business Oper Specialists/All Other	17,780	22,280	4,500	25.3%	450	300	750
13-2000	Financial Specialists	40,330	48,110	7,780	19.3%	780	720	1,500
13-2011	Accountants and Auditors	20,010	23,800	3,790	18.9%	380	380	760
13-2021	Appraisers/Assessors Real Estate	1,670	1,960	290	17.4%	30	40	70
13-2031	Budget Analysts	880	970	90	10.2%	10	10	20
13-2041	Credit Analysts	1,000	1,200	200	20.0%	20	20	40
13-2051	Financial Analysts	1,740	2,070	330	19.0%	30	30	60
13-2052	Personal Financial Advisors	2,250	3,140	890	39.6%	90	30	120
13-2053	Insurance Underwriters	3,220	3,650	430	13.4%	40	60	100
13-2061	Financial Examiners	430	480	50	11.6%	10	10	20
13-2071	Loan Counselors	390	460	70	17.9%	10	10	20
13-2072	Loan Officers	5,500	6,610	1,110	20.2%	110	90	200
13-2081	Tax Exam/Collctrs/Revenue Agents	710	710	0	0.0%	0	20	20
13-2082	Tax Preparers	1,380	1,720	340	24.6%	40	20	60
13-2099	Financial Specialists/All Other	1,160	1,350	190	16.4%	20	20	40
<b>15-0000</b>	<b>Computer &amp; Mathematical Occupations</b>	<b>49,480</b>	<b>65,140</b>	<b>15,660</b>	<b>31.6%</b>	<b>1,570</b>	<b>670</b>	<b>2,240</b>
15-1000	Computer Specialists	48,020	63,590	15,570	32.4%	1,560	630	2,190
15-1011	Computer/Info Scientists/Research	130	160	30	23.1%	0	0	0
15-1021	Computer Programmers	7,350	7,930	580	7.9%	60	170	230
15-1031	Computer Software Engrs Apps	4,860	6,950	2,090	43.0%	210	50	260
15-1032	Computer Soft Engrs Sysms Soft	2,160	3,270	1,110	51.4%	110	20	130
15-1041	Computer Support Specialists	8,140	10,130	1,990	24.4%	200	100	300
15-1051	Computer Systems Analysts	12,910	17,880	4,970	38.5%	500	150	650
15-1061	Database Administrators	1,630	2,200	570	35.0%	60	20	80
15-1071	Network/Computer Systems Admin	4,720	6,230	1,510	32.0%	150	50	200

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
<b>13-0000</b>	<b>Business/Financial Operations Occs</b>		<b>48,840</b>	<b>16.20 - 28.48</b>
13-1000	Business Operations Specialists		NA	NA
13-1011	Agents/Bus Mgrs Artsts/Prfrms/Ath	Degree & work experience	49,730	12.88 - 39.34
13-1021	Purch Agents/Buyers Farm Prod	Work experience in related occ	41,980	15.37 - 23.39
13-1022	Whole/Retail Buyers Ex Farm Prod	Bachelor's degree	45,350	14.57 - 26.78
13-1023	Purch Agents Ex Whole/Retail/Farm	Bachelor's degree	47,180	16.95 - 27.05
13-1031	Claims Adjust/Exam/Investigators	Long-term on-the-job training	38,530	12.99 - 22.60
13-1032	Insurance Appraisers Auto Damage	Long-term on-the-job training	40,940	17.82 - 22.68
13-1041	Compl Offcrs Ex Ag/Cnst/Hlth/Sfty/Tr	Long-term on-the-job training	53,490	16.58 - 29.18
13-1051	Cost Estimators	Bachelor's degree	48,210	16.59 - 28.21
13-1061	Emergency Mgmt Specialists	Work experience in related occ	46,560	15.89 - 28.63
13-1071	Empl/Recruit/Placement Specialists	Bachelor's degree	40,350	13.94 - 23.06
13-1072	Compen/Benefits/Job Specialists	Bachelor's degree	43,930	16.44 - 24.53
13-1073	Training/Development Specialists	Bachelor's degree	44,260	15.59 - 26.25
13-1111	Management Analysts	Degree & work experience	62,110	21.05 - 34.99
13-1121	Meeting and Convention Planners	Bachelor's degree	35,560	12.55 - 20.84
13-1199	Business Oper Specialists/All Other	Bachelor's degree	NA	NA
13-2000	Financial Specialists		NA	NA
13-2011	Accountants and Auditors	Bachelor's degree	55,100	19.16 - 30.32
13-2021	Appraisers/Assessors Real Estate	Postsecondary vocational training	45,470	16.05 - 26.76
13-2031	Budget Analysts	Bachelor's degree	53,440	20.44 - 29.70
13-2041	Credit Analysts	Bachelor's degree	43,290	15.29 - 24.91
13-2051	Financial Analysts	Bachelor's degree	71,080	21.19 - 39.13
13-2052	Personal Financial Advisors	Bachelor's degree	70,050	17.49 - 39.66
13-2053	Insurance Underwriters	Bachelor's degree	45,580	16.70 - 26.37
13-2061	Financial Examiners	Bachelor's degree	69,060	21.75 - 40.08
13-2071	Loan Counselors	Bachelor's degree	44,510	14.27 - 26.08
13-2072	Loan Officers	Bachelor's degree	51,530	15.89 - 29.79
13-2081	Tax Exam/Collctrs/Revenue Agents	Bachelor's degree	50,710	18.02 - 31.87
13-2082	Tax Preparers	Moderate-term on-the-job training	28,720	9.39 - 16.90
13-2099	Financial Specialists/All Other	Bachelor's degree	NA	NA
<b>15-0000</b>	<b>Computer &amp; Mathematical Occupations</b>		<b>57,070</b>	<b>19.72 - 33.91</b>
15-1000	Computer Specialists		NA	NA
15-1011	Computer/Info Scientists/Research	Doctoral degree	70,570	21.07 - 43.51
15-1021	Computer Programmers	Bachelor's degree	54,410	20.40 - 30.92
15-1031	Computer Software Engrs Apps	Bachelor's degree	65,240	25.11 - 36.78
15-1032	Computer Soft Engrs Systms Soft	Bachelor's degree	65,950	24.34 - 37.39
15-1041	Computer Support Specialists	Associate degree	39,020	14.80 - 21.71
15-1051	Computer Systems Analysts	Bachelor's degree	68,780	24.54 - 41.71
15-1061	Database Administrators	Bachelor's degree	54,730	19.43 - 32.75
15-1071	Network/Computer Systems Admin	Bachelor's degree	53,670	19.90 - 30.95

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
15-1081	Network Sysrms/Data Comm Analysts	3,070	4,800	1,730	56.4%	170	40	210
15-1099	Computer Specialists/All Other	3,060	4,050	990	32.4%	100	40	140
15-2000	Mathematical Scientists	1,460	1,550	90	6.2%	10	40	50
15-2011	Actuaries	390	450	60	15.4%	10	20	30
15-2021	Mathematicians	30	30	0	0.0%	0	0	0
15-2031	Operations Research Analysts	810	810	0	0.0%	0	20	20
15-2041	Statisticians	230	250	20	8.7%	0	10	10
15-2099	Math Science Occs/All Other	10	20	10	100.0%	0	0	0
<b>17-0000</b>	<b>Architecture/Engineering Occupations</b>	<b>50,670</b>	<b>54,490</b>	<b>3,820</b>	<b>7.5%</b>	<b>380</b>	<b>1,160</b>	<b>1,540</b>
17-1000	Architects/Surveyors/Cartographers	3,190	3,630	440	13.8%	40	60	100
17-1011	Architects/Ex Landscape/Naval	1,660	1,920	260	15.7%	30	20	50
17-1012	Landscape Architects	400	480	80	20.0%	10	10	20
17-1021	Cartographers/Photogrammetrists	240	270	30	12.5%	0	10	10
17-1022	Surveyors	900	960	60	6.7%	10	30	40
17-2000	Engineers	29,010	31,070	2,060	7.1%	210	650	860
17-2011	Aerospace Engineers	170	180	10	5.9%	0	0	0
17-2021	Agricultural Engineers	40	40	0	0.0%	0	0	0
17-2031	Biomedical Engineers	190	260	70	36.8%	10	0	10
17-2041	Chemical Engineers	510	520	10	2.0%	0	20	20
17-2051	Civil Engineers	3,450	3,650	200	5.8%	20	60	80
17-2061	Computer Hardware Engineers	830	860	30	3.6%	0	10	10
17-2071	Electrical Engineers	3,890	3,930	40	1.0%	0	80	80
17-2072	Electronics Engineers/Ex Computer	1,700	1,880	180	10.6%	20	30	50
17-2081	Environmental Engineers	1,040	1,420	380	36.5%	40	20	60
17-2111	Health/Safety Engineers/Ex Mining	630	680	50	7.9%	10	20	30
17-2112	Industrial Engineers	4,250	4,620	370	8.7%	40	100	140
17-2121	Marine Engineers/Naval Architects	20	20	0	0.0%	0	0	0
17-2131	Materials Engineers	1,330	1,420	90	6.8%	10	40	50
17-2141	Mechanical Engineers	7,690	8,010	320	4.2%	30	210	240
17-2151	Mining/Geological Engineers	20	20	0	0.0%	0	0	0
17-2161	Nuclear Engineers	60	60	0	0.0%	0	0	0
17-2171	Petroleum Engineers	30	30	0	0.0%	0	0	0
17-2199	Engineers/All Other	3,160	3,480	320	10.1%	30	60	90
17-3000	Drafters/Engineering/Mapping Techs	18,470	19,790	1,320	7.1%	130	450	580
17-3011	Architectural/Civil Drafters	1,690	1,780	90	5.3%	10	50	60
17-3012	Electrical/Electronics Drafters	1,180	1,190	10	0.8%	0	30	30
17-3013	Mechanical Drafters	3,310	3,360	50	1.5%	10	90	100
17-3021	Aerospace Engrngg/Opers Techs	60	70	10	16.7%	0	0	0
17-3022	Civil Engineering Techs	1,800	1,850	50	2.8%	10	40	50
17-3023	Electrical/Electronic Engrngg Techs	3,580	3,910	330	9.2%	30	80	110
17-3024	Electro-Mechanical Techs	800	890	90	11.3%	10	20	30

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
15-1081	Network Sysrms/Data Comm Analysts	Bachelor's degree	55,620	19.68 - 32.54
15-1099	Computer Specialists/All Other	Associate degree	NA	NA
15-2000	Mathematical Scientists		NA	NA
15-2011	Actuaries	Degree & work experience	70,660	23.85 - 42.53
15-2021	Mathematicians	Master's degree	NA	NA
15-2031	Operations Research Analysts	Master's degree	59,130	22.42 - 33.82
15-2041	Statisticians	Master's degree	61,350	20.83 - 36.37
15-2099	Math Science Occs/All Other	Master's degree	NA	NA
<b>17-0000</b>	<b>Architecture/Engineering Occupations</b>		<b>54,790</b>	<b>19.04 - 31.89</b>
17-1000	Architects/Surveyors/Cartographers		NA	NA
17-1011	Architects/Ex Landscape/Naval	Bachelor's degree	69,190	21.21 - 35.19
17-1012	Landscape Architects	Bachelor's degree	47,700	16.97 - 26.57
17-1021	Cartographers/Photogrammetrists	Bachelor's degree	54,030	15.89 - 32.22
17-1022	Surveyors	Bachelor's degree	41,650	15.54 - 24.04
17-2000	Engineers		NA	NA
17-2011	Aerospace Engineers	Bachelor's degree	63,180	25.30 - 30.20
17-2021	Agricultural Engineers	Bachelor's degree	61,280	24.22 - 33.20
17-2031	Biomedical Engineers	Bachelor's degree	62,180	19.32 - 36.79
17-2041	Chemical Engineers	Bachelor's degree	70,840	26.81 - 39.35
17-2051	Civil Engineers	Bachelor's degree	58,010	22.62 - 32.88
17-2061	Computer Hardware Engineers	Bachelor's degree	60,180	20.34 - 36.44
17-2071	Electrical Engineers	Bachelor's degree	69,770	25.60 - 37.64
17-2072	Electronics Engineers/Ex Computer	Bachelor's degree	64,640	24.41 - 37.85
17-2081	Environmental Engineers	Bachelor's degree	64,260	23.56 - 36.77
17-2111	Health/Safety Engineers/Ex Mining	Bachelor's degree	57,180	22.48 - 32.63
17-2112	Industrial Engineers	Bachelor's degree	60,160	23.49 - 33.62
17-2121	Marine Engineers/Naval Architects	Bachelor's degree	NA	NA
17-2131	Materials Engineers	Bachelor's degree	56,540	22.84 - 32.16
17-2141	Mechanical Engineers	Bachelor's degree	60,220	23.08 - 33.76
17-2151	Mining/Geological Engineers	Bachelor's degree	NA	NA
17-2161	Nuclear Engineers	Bachelor's degree	78,440	31.70 - 43.51
17-2171	Petroleum Engineers	Bachelor's degree	NA	NA
17-2199	Engineers/All Other	Bachelor's degree	NA	NA
17-3000	Drafters/Engineering/Mapping Techs		NA	NA
17-3011	Architectural/Civil Drafters	Postsecondary vocational training	39,440	15.10 - 21.43
17-3012	Electrical/Electronics Drafters	Postsecondary vocational training	42,390	15.86 - 23.99
17-3013	Mechanical Drafters	Postsecondary vocational training	39,600	15.35 - 22.04
17-3021	Aerospace Engrng/Opers Techs	Associate degree	43,650	16.49 - 25.44
17-3022	Civil Engineering Techs	Associate degree	40,280	15.53 - 22.86
17-3023	Electrical/Electronic Engrng Techs	Associate degree	43,100	16.40 - 25.02
17-3024	Electro-Mechanical Techs	Associate degree	41,340	15.88 - 23.86

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
17-3025	Environmental Engineering Techs	380	460	80	21.1%	10	10	20
17-3026	Industrial Engineering Techs	1,420	1,610	190	13.4%	20	30	50
17-3027	Mechanical Engineering Techs	1,880	1,970	90	4.8%	10	40	50
17-3031	Surveying/Mapping Techs	900	1,100	200	22.2%	20	30	50
17-3099 <sup>(7)</sup>	Drafters/Engnrng/Map Techs AO	1,500	1,620	120	8.0%	10	40	50
<b>19-0000</b>	<b>Life, Physical, and Social Sci Occs</b>	<b>28,850</b>	<b>33,230</b>	<b>4,380</b>	<b>15.2%</b>	<b>440</b>	<b>690</b>	<b>1,130</b>
19-1000	Life Scientists	6,160	6,970	810	13.1%	80	140	220
19-1010	Agricultural and Food Scientists	900	980	80	8.9%	10	20	30
19-1021	Biochemists and Biophysicists	300	350	50	16.7%	10	10	20
19-1022	Microbiologists	430	480	50	11.6%	10	10	20
19-1023	Zoologists and Wildlife Biologists	300	310	10	3.3%	0	10	10
19-1031	Conservation Scientists	840	850	10	1.2%	0	30	30
19-1032	Foresters	550	550	0	0.0%	0	20	20
19-1041	Epidemiologists	60	90	30	50.0%	0	0	0
19-1042	Med Scientists Ex Epidemiologists	2,030	2,490	460	22.7%	50	40	90
19-1099	Life Scientists/All Other	750	860	110	14.7%	10	10	20
19-2000	Physical Scientists	5,370	5,950	580	10.8%	60	150	210
19-2011	Astronomers	30	30	0	0.0%	0	0	0
19-2012	Physicists	390	440	50	12.8%	10	10	20
19-2021	Atmospheric and Space Scientists	250	290	40	16.0%	0	10	10
19-2031	Chemists	2,210	2,370	160	7.2%	20	70	90
19-2032	Materials Scientists	310	300	(10)	-3.2%	0	10	10
19-2041	Environ Sci/Specialists/Incl Health	1,040	1,270	230	22.1%	20	20	40
19-2042	Geosci Ex Hydrolog/Geograph	170	190	20	11.8%	0	0	0
19-2043	Hydrologists	350	410	60	17.1%	10	10	20
19-2099	Physical Scientists/All Other	620	660	40	6.5%	0	10	10
19-3000	Social Scientists & Related Works	11,070	13,200	2,130	19.2%	210	270	480
19-3011	Economists	390	490	100	25.6%	10	10	20
19-3021	Market Research Analysts	3,680	4,590	910	24.7%	90	100	190
19-3022	Survey Researchers	140	190	50	35.7%	10	0	10
19-3031	Clinical/Counseling/School Psych	3,690	4,460	770	20.9%	80	80	160
19-3032	Industrial-Organizational Psych	0	10	10	100.0%	0	0	0
19-3041	Sociologists	140	150	10	7.1%	0	10	10
19-3051	Urban and Regional Planners	550	580	30	5.5%	0	20	20
19-3091	Anthropologists/Archeologists	30	30	0	0.0%	0	0	0
19-3092	Geographers	40	40	0	0.0%	0	0	0
19-3093	Historians	90	90	0	0.0%	0	0	0
19-3094	Political Scientists	60	60	0	0.0%	0	0	0
19-3099	Social Scientists/Related Wrks AO	2,260	2,510	250	11.1%	30	50	80

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
17-3025	Environmental Engineering Techs	Associate degree	39,040	14.53 - 21.56
17-3026	Industrial Engineering Techs	Associate degree	47,140	17.22 - 25.96
17-3027	Mechanical Engineering Techs	Associate degree	46,330	16.26 - 24.92
17-3031	Surveying/Mapping Techs	Moderate-term on-the-job training	31,650	12.31 - 17.73
17-3099 <sup>(7)</sup>	Drafters/Engnrng/Map Techs AO	Associate degree	NA	NA
<b>19-0000</b>	<b>Life, Physical, and Social Sci Occs</b>		<b>46,700</b>	<b>15.08 - 27.18</b>
19-1000	Life Scientists		NA	NA
19-1010	Agricultural and Food Scientists	Bachelor's degree	45,840	15.77 - 25.34
19-1021	Biochemists and Biophysicists	Doctoral degree	49,990	15.83 - 30.34
19-1022	Microbiologists	Doctoral degree	41,360	15.36 - 22.90
19-1023	Zoologists and Wildlife Biologists	Doctoral degree	45,360	16.83 - 24.85
19-1031	Conservation Scientists	Bachelor's degree	50,150	19.70 - 28.58
19-1032	Foresters	Bachelor's degree	43,440	16.52 - 25.12
19-1041	Epidemiologists	Master's degree	50,650	19.86 - 27.37
19-1042	Med Scientists Ex Epidemiologists	Doctoral degree	51,710	16.27 - 30.85
19-1099	Life Scientists/All Other	Bachelor's degree	NA	NA
19-2000	Physical Scientists		NA	NA
19-2011	Astronomers	Doctoral degree	NA	NA
19-2012	Physicists	Doctoral degree	61,960	15.83 - 41.76
19-2021	Atmospheric and Space Scientists	Bachelor's degree	49,710	14.34 - 32.36
19-2031	Chemists	Bachelor's degree	51,040	16.97 - 30.06
19-2032	Materials Scientists	Bachelor's degree	58,460	23.46 - 33.67
19-2041	Environ Sci/Specialists/Incl Health	Master's degree	46,870	18.09 - 26.26
19-2042	Geosci Ex Hydrolog/Geograph	Master's degree	49,740	16.73 - 30.85
19-2043	Hydrologists	Master's degree	54,240	19.71 - 31.98
19-2099	Physical Scientists/All Other	Bachelor's degree	NA	NA
19-3000	Social Scientists & Related Works		NA	NA
19-3011	Economists	Master's degree	61,840	19.64 - 35.66
19-3021	Market Research Analysts	Master's degree	59,560	18.39 - 35.31
19-3022	Survey Researchers	Master's degree	38,220	15.77 - 20.77
19-3031	Clinical/Counseling/School Psych	Doctoral degree	54,170	19.71 - 32.09
19-3032	Industrial-Organizational Psych	Master's degree	NA	NA
19-3041	Sociologists	Master's degree	34,910	12.84 - 18.54
19-3051	Urban and Regional Planners	Master's degree	41,770	15.31 - 24.50
19-3091	Anthropologists/Archeologists	Master's degree	NA	NA
19-3092	Geographers	Master's degree	34,610	12.42 - 18.16
19-3093	Historians	Master's degree	42,380	13.98 - 25.73
19-3094	Political Scientists	Master's degree	30,960	11.94 - 13.69
19-3099	Social Scientists/Related Wrks AO	Master's degree	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
19-4000	Life, Physical, and Social Science Techs	6,250	7,110	860	13.8%	90	140	230
19-4011	Agricultural and Food Science Techs	590	620	30	5.1%	0	10	10
19-4021	Biological Techs	1,020	1,180	160	15.7%	20	20	40
19-4031	Chemical Techs	1,320	1,440	120	9.1%	10	30	40
19-4041	Geological and Petroleum Techs	10	10	0	0.0%	0	0	0
19-4051 <sup>(8)</sup>	Nuclear Techs	(8)	(8)	(8)	(8)	(8)	(8)	(8)
19-4091	Envir Sci/Protect Techs Incl Health	480	630	150	31.3%	10	10	20
19-4092	Forensic Science Techs	10	10	0	0.0%	0	0	0
19-4093	Forest/Conservation Techs	450	450	0	0.0%	0	10	10
19-4099 <sup>(8)</sup>	Life/Physical/Social Sci Techs AO	2,370	2,780	410	17.3%	40	60	100
<b>21-0000</b>	<b>Community/Social Services Occs</b>	<b>50,410</b>	<b>60,790</b>	<b>10,380</b>	<b>20.6%</b>	<b>1,040</b>	<b>950</b>	<b>1,990</b>
21-1000	Couns/Soc Works/Other Soc Serv	31,160	39,740	8,580	27.5%	860	600	1,460
21-1011	Sub Abuse/Behavior Disordr Cnslrs	1,050	1,300	250	23.8%	30	20	50
21-1012	Ed/Vocational/School Counselors	4,170	4,610	440	10.6%	40	100	140
21-1013	Marriage/Family Therapists	610	740	130	21.3%	10	10	20
21-1014	Mental Health Counselors	1,270	1,610	340	26.8%	30	30	60
21-1015	Rehabilitation Counselors	2,810	3,740	930	33.1%	90	60	150
21-1021	Child/Family/School Social Wrks	6,600	7,940	1,340	20.3%	130	110	240
21-1022	Medical/Public Health Social Wrks	2,220	2,810	590	26.6%	60	40	100
21-1023	Mental Hlth/Sub Abuse Social Wrks	1,850	2,460	610	33.0%	60	30	90
21-1091	Health Educators	670	790	120	17.9%	10	10	20
21-1092	Prob Offcrs/Correctnl Treat Spclsts	2,100	2,330	230	11.0%	20	40	60
21-1093	Social/Human Service Assts	7,810	11,410	3,600	46.1%	360	140	500
21-2000	Religious Wrks	14,210	14,870	660	4.6%	70	260	330
21-2011	Clergy	10,990	11,330	340	3.1%	30	230	260
21-2021	Directors/Religious Activities/Ed	3,220	3,550	330	10.2%	30	40	70
21-9099 <sup>(7)</sup>	Counsel/Social/Religious Wrks AO	5,050	6,180	1,130	22.4%	110	90	200
<b>23-0000</b>	<b>Legal Occupations</b>	<b>15,970</b>	<b>18,540</b>	<b>2,570</b>	<b>16.1%</b>	<b>260</b>	<b>190</b>	<b>450</b>
23-1000	Lawyers, Judges, & Related Works	10,610	12,410	1,800	17.0%	180	140	320
23-1011	Lawyers	10,150	11,940	1,790	17.6%	180	130	310
23-1021	Admin Law Jdgs/Adjudic/Hrng Offcr	80	70	(10)	-12.5%	0	0	0
23-1022	Arbitrators/Mediators/Conciliators	210	220	10	4.8%	0	0	0
23-1023	Jdgs/Magistrate Jdgs/Magistrates	180	190	10	5.6%	0	0	0
23-2000	Legal Support Wrks	4,600	5,360	760	16.5%	80	40	120
23-2011	Paralegals and Legal Assistants	2,480	3,170	690	27.8%	70	20	90
23-2091	Court Reporters	210	230	20	9.5%	0	0	0
23-2092	Law Clerks	610	650	40	6.6%	0	10	10
23-2093	Title Exam/Abstractors/Searchers	1,310	1,310	0	0.0%	0	10	10
23-9099 <sup>(7)</sup>	Legal & Related Wrks, All Other	760	770	10	1.3%	0	10	10

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
19-4000	Life, Physical, and Social Science Techs		NA	NA
19-4011	Agricultural and Food Science Techs	Associate degree	31,290	10.92 - 17.21
19-4021	Biological Techs	Associate degree	29,320	11.36 - 16.71
19-4031	Chemical Techs	Associate degree	34,220	13.00 - 18.74
19-4041	Geological and Petroleum Techs	Associate degree	NA	NA
19-4051 <sup>(8)</sup>	Nuclear Techs	Associate degree	NA	NA
19-4091	Envir Sci/Protect Techs Incl Health	Associate degree	40,700	16.35 - 22.10
19-4092	Forensic Science Techs	Associate degree	NA	NA
19-4093	Forest/Conservation Techs	Associate degree	32,940	12.81 - 18.93
19-4099 <sup>(8)</sup>	Life/Physical/Social Sci Techs AO	Associate degree	NA	NA
<b>21-0000</b>	<b>Community/Social Services Occs</b>		<b>34,900</b>	<b>12.15 - 20.45</b>
21-1000	Couns/Soc Workrs/Other Soc Serv		NA	NA
21-1011	Sub Abuse/Behavior Disordr Cnslrs	Master's degree	36,730	12.99 - 20.25
21-1012	Ed/Vocational/School Counselors	Master's degree	45,200	16.22 - 26.74
21-1013	Marriage/Family Therapists	Master's degree	47,920	14.94 - 27.21
21-1014	Mental Health Counselors	Master's degree	42,260	13.92 - 22.62
21-1015	Rehabilitation Counselors	Master's degree	28,490	9.46 - 16.74
21-1021	Child/Family/School Social Wrkrs	Master's degree	36,700	13.36 - 21.23
21-1022	Medical/Public Health Social Wrkrs	Master's degree	39,740	16.00 - 21.82
21-1023	Mental Hlth/Sub Abuse Social Wrkrs	Master's degree	37,260	13.72 - 21.08
21-1091	Health Educators	Master's degree	36,490	13.60 - 21.35
21-1092	Prob Offcrs/Correctnl Treat Spclsts	Bachelor's degree	35,900	14.40 - 20.15
21-1093	Social/Human Service Assts	Moderate-term on-the-job training	25,750	9.72 - 14.37
21-2000	Religious Wrkrs		NA	NA
21-2011	Clergy	Master's degree	38,940	14.94 - 21.55
21-2021	Directors/Religious Activities/Ed	Bachelor's degree	NA	NA
21-9099 <sup>(7)</sup>	Counsel/Social/Religious Wrkrs AO	Bachelor's degree	NA	NA
<b>23-0000</b>	<b>Legal Occupations</b>		<b>72,110</b>	<b>17.58 - 45.15</b>
23-1000	Lawyers, Judges, & Related Workrs		NA	NA
23-1011	Lawyers	First professional degree	96,880	29.95 - 56.23
23-1021	Admin Law Jdgs/Adjudic/Hrng Offcr	Degree & work experience	69,430	9.02 - 47.07
23-1022	Arbitrators/Mediators/Conciliators	Degree & work experience	45,490	16.21 - 25.63
23-1023	Jdgs/Magistrate Jdgs/Magistrates	Degree & work experience	65,150	7.14 - 50.00
23-2000	Legal Support Wrkrs		NA	NA
23-2011	Paralegals and Legal Assistants	Associate degree	36,460	13.48 - 20.71
23-2091	Court Reporters	Postsecondary vocational training	47,180	19.48 - 26.87
23-2092	Law Clerks	Bachelor's degree	36,370	12.49 - 20.24
23-2093	Title Exam/Abstractors/Searchers	Moderate-term on-the-job training	31,870	11.72 - 17.39
23-9099 <sup>(7)</sup>	Legal & Related Wrkrs, All Other	Bachelor's degree	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
<b>25-0000</b>	<b>Ed, Training, &amp; Library Occs</b>	<b>181,470</b>	<b>215,560</b>	<b>34,090</b>	<b>18.8%</b>	<b>3,410</b>	<b>3,830</b>	<b>7,240</b>
25-1000	Postsecondary Teachers	29,640	39,510	9,870	33.3%	990	670	1,660
25-1011	Business Teachers, Postsecondary	1,720	2,320	600	34.9%	60	40	100
25-1021	Computer Science Teachers Ps	640	860	220	34.4%	20	10	30
25-1022	Mathematical Science Teachers Ps	930	1,220	290	31.2%	30	20	50
25-1031	Architecture Teachers/Postsec	20	30	10	50.0%	0	0	0
25-1032	Engineering Teachers/Postsec	580	770	190	32.8%	20	10	30
25-1041	Ag Sciences Teachers/Postsec	250	330	80	32.0%	10	10	20
25-1042	Biological Science Teachers Ps	810	1,080	270	33.3%	30	20	50
25-1043	Forestry/Cons Sci Teachers Ps	50	60	10	20.0%	0	0	0
25-1051	Atmos/Erth/Marin/Space Sci Tch Ps	130	170	40	30.8%	0	0	0
25-1052	Chemistry Teachers/Postsec	330	430	100	30.3%	10	10	20
25-1053	Environmental Sci TeachersPs	20	30	10	50.0%	0	0	0
25-1054	Physics Teachers/Postsec	270	360	90	33.3%	10	10	20
25-1061	Anthropology/Archeology Tchrs Ps	70	90	20	28.6%	0	0	0
25-1062	Area/Ethnic/Cultur Studies Tchrs Ps	170	230	60	35.3%	10	0	10
25-1063	Economics Teachers/Postsec	250	330	80	32.0%	10	10	20
25-1064	Geography Teachers/Postsec	150	190	40	26.7%	10	0	10
25-1065	Political Science Teachers/Postsec	240	320	80	33.3%	10	10	20
25-1066	Psychology Teachers/Postsec	540	730	190	35.2%	20	10	30
25-1067	Sociology Teachers/Postsec	350	470	120	34.3%	10	10	20
25-1071	Health Specialties Teachers Ps	4,530	6,070	1,540	34.0%	150	100	250
25-1072	Nursing Instructors/Teachers Ps	880	1,160	280	31.8%	30	20	50
25-1081	Ed Teachers/Postsec	1,310	1,770	460	35.1%	50	30	80
25-1082	Library Science Teachers/Postsec	60	80	20	33.3%	0	0	0
25-1111	Crim Jus/Law Enforce Tchrs Ps	140	180	40	28.6%	0	0	0
25-1112	Law Teachers/Postsec	100	140	40	40.0%	0	0	0
25-1113	Social Work Teachers/Postsec	190	250	60	31.6%	10	0	10
25-1121	Art/Drama/Music Teachers/Postsec	1,610	2,170	560	34.8%	60	40	100
25-1122	Communications Teachers Ps	830	1,120	290	34.9%	30	20	50
25-1123	English Language/Lit Teachers/Ps	1,100	1,450	350	31.8%	40	30	70
25-1124	Foreign Language/Lit Teachers/Ps	530	720	190	35.8%	20	10	30
25-1125	History Teachers/Postsec	390	530	140	35.9%	10	10	20
25-1126	Philosophy/Religion Teachers/Ps	360	490	130	36.1%	10	10	20
25-1191	Graduate Teaching Assts	2,300	3,000	700	30.4%	70	50	120
25-1192	Home Economics Teachers/Postsec	130	170	40	30.8%	0	0	0
25-1193	Rec/Fitness Studies Teachers/Ps	250	330	80	32.0%	10	10	20
25-1194	Vocational Ed Teachers/Postsec	4,390	5,890	1,500	34.2%	150	100	250
25-1199	Postsec Teachers/All Other	3,020	3,990	970	32.1%	100	70	170

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
<b>25-0000</b>	<b>Ed, Training, &amp; Library Occs</b>		<b>39,770</b>	<b>12.22 - 24.16</b>
25-1000	Postsecondary Teachers		NA	NA
25-1011	Business Teachers, Postsecondary	Doctoral degree	59,870	NA
25-1021	Computer Science Teachers Ps	Doctoral degree	57,730	NA
25-1022	Mathematical Science Teachers Ps	Doctoral degree	52,890	NA
25-1031	Architecture Teachers/Postsec	Doctoral degree	NA	NA
25-1032	Engineering Teachers/Postsec	Doctoral degree	77,500	NA
25-1041	Ag Sciences Teachers/Postsec	Doctoral degree	68,330	NA
25-1042	Biological Science Teachers Ps	Doctoral degree	67,090	NA
25-1043	Forestry/Cons Sci Teachers Ps	Doctoral degree	NA	NA
25-1051	Atmos/Erth/Marin/Space Sci Tch Ps	Doctoral degree	62,640	NA
25-1052	Chemistry Teachers/Postsec	Doctoral degree	56,870	NA
25-1053	Environmental Sci TeachersPs	Doctoral degree	NA	NA
25-1054	Physics Teachers/Postsec	Doctoral degree	62,150	NA
25-1061	Anthropology/Archeology Tchrs Ps	Doctoral degree	50,520	NA
25-1062	Area/Ethnic/Cultur Studies Tchrs Ps	Doctoral degree	57,040	NA
25-1063	Economics Teachers/Postsec	Doctoral degree	62,830	NA
25-1064	Geography Teachers/Postsec	Doctoral degree	51,480	NA
25-1065	Political Science Teachers/Postsec	Doctoral degree	56,670	NA
25-1066	Psychology Teachers/Postsec	Doctoral degree	48,050	NA
25-1067	Sociology Teachers/Postsec	Doctoral degree	50,040	NA
25-1071	Health Specialties Teachers Ps	Master's degree	104,170	NA
25-1072	Nursing Instructors/Teachers Ps	Doctoral degree	54,390	NA
25-1081	Ed Teachers/Postsec	Doctoral degree	46,930	NA
25-1082	Library Science Teachers/Postsec	Doctoral degree	NA	NA
25-1111	Crim Jus/Law Enforce Tchrs Ps	Doctoral degree	46,630	NA
25-1112	Law Teachers/Postsec	Doctoral degree	70,840	NA
25-1113	Social Work Teachers/Postsec	Doctoral degree	49,700	NA
25-1121	Art/Drama/Music Teachers/Postsec	Master's degree	43,710	NA
25-1122	Communications Teachers Ps	Doctoral degree	51,060	NA
25-1123	English Language/Lit Teachers/Ps	Doctoral degree	47,740	NA
25-1124	Foreign Language/Lit Teachers/Ps	Doctoral degree	46,020	NA
25-1125	History Teachers/Postsec	Doctoral degree	52,030	NA
25-1126	Philosophy/Religion Teachers/Ps	Doctoral degree	49,120	NA
25-1191	Graduate Teaching Assts	Bachelor's degree	23,290	NA
25-1192	Home Economics Teachers/Postsec	Doctoral degree	47,350	NA
25-1193	Rec/Fitness Studies Teachers/Ps	Master's degree	44,130	NA
25-1194	Vocational Ed Teachers/Postsec	Work experience in related occ	56,790	21.97 - 33.63
25-1199	Postsec Teachers/All Other	Doctoral degree	NA	NA

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
25-2000	Primary/Secondary/Special Ed Teachers	98,950	112,800	13,850	14.0%	1,390	2,210	3,600
25-2011	Preschool Teachers/Ex Special Ed	10,980	14,190	3,210	29.2%	320	130	450
25-2012	Kindergarten Tchrs Ex Special Ed	4,110	5,030	920	22.4%	90	50	140
25-2021	Elemen Schl Tchrs Ex Special Ed	29,730	32,870	3,140	10.6%	310	660	970
25-2022	Middle School Tchrs/Ex Sp./Voc Ed	17,870	18,740	870	4.9%	90	400	490
25-2023	Vocational Ed Tchrs/Middle School	470	490	20	4.3%	0	10	10
25-2031	Secondary Schl Tchrs Ex Sp/Voc Ed	24,770	28,180	3,410	13.8%	340	700	1,040
25-2032	Voc Ed Teachers/Secondary Schl	2,450	2,570	120	4.9%	10	70	80
25-2041	Sp Ed Tchrs/Presch/Kind/Elem Schl	4,060	5,070	1,010	24.9%	100	100	200
25-2042	Special Ed Teachers/Middle School	1,980	2,490	510	25.8%	50	50	100
25-2043	Special Ed Teachers/Sec School	2,530	3,170	640	25.3%	60	60	120
25-3000	Other Teachers and Instructors	15,880	20,400	4,520	28.5%	450	200	650
25-3011	Adult Liter/Rem Ed/GED Tchrs/Inst	1,450	1,590	140	9.7%	10	20	30
25-3021	Self-Enrichment Ed Teachers	4,570	5,910	1,340	29.3%	140	60	200
25-3999 <sup>(7)</sup>	Tchrs/Prim/Sec/Adult/All Other	9,860	12,900	3,040	30.8%	300	120	420
25-4000	Librarians, Curators, and Archivists	6,450	6,920	470	7.3%	50	190	240
25-4010	Archivists/Curators/Museum Techs	380	410	30	7.9%	0	10	10
25-4021	Librarians	3,520	3,670	150	4.3%	20	80	100
25-4031	Library Techs	2,550	2,840	290	11.4%	30	90	120
25-9000	Other Ed, Training, and Library Occs	30,550	35,930	5,380	17.6%	540	570	1,110
25-9011	Audio-Visual Collections Specialists	220	230	10	4.5%	0	0	0
25-9021	Farm/Home Management Advisors	110	110	0	0.0%	0	0	0
25-9031	Instructional Coordinators	1,530	1,860	330	21.6%	30	20	50
25-9041	Teacher Assts	25,850	30,310	4,460	17.3%	450	500	950
25-9199 <sup>(7)</sup>	Libr/Mus/Trng/Other Ed Wrks/AO	2,840	3,410	570	20.1%	60	40	100
<b>27-0000</b>	<b>Arts/Design/Entertainment/Sports/Media</b>	<b>49,440</b>	<b>55,450</b>	<b>6,010</b>	<b>12.2%</b>	<b>600</b>	<b>930</b>	<b>1,530</b>
27-1000	Art and Design Wrks	15,360	17,690	2,330	15.2%	230	230	460
27-1011	Art Directors	720	800	80	11.1%	10	20	30
27-1013	Fine Artists/Incl Pntrs/Sculptrs/Illstrs	380	420	40	10.5%	0	10	10
27-1014	Multi-Media Artists/Animators	880	950	70	8.0%	10	20	30
27-1021	Commercial/Industrial Designers	1,330	1,540	210	15.8%	20	20	40
27-1022	Fashion Designers	50	50	0	0.0%	0	0	0
27-1023	Floral Designers	2,350	2,590	240	10.2%	20	30	50
27-1024	Graphic Designers	5,290	6,350	1,060	20.0%	110	70	180
27-1025	Interior Designers	1,380	1,710	330	23.9%	30	20	50
27-1026	Merch Display/Window Trimmers	1,070	1,210	140	13.1%	10	10	20
27-1027	Set/Exhibit Designers	140	160	20	14.3%	0	0	0
27-1099 <sup>(7)</sup>	Art & Design Wrks, All Other	1,770	1,910	140	7.9%	20	30	50

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
25-2000	Primary/Secondary/Special Ed Teachers		NA	NA
25-2011	Preschool Teachers/Ex Special Ed	Bachelor's degree	21,050	7.93 - 10.58
25-2012	Kindergarten Tchrs Ex Special Ed	Bachelor's degree	37,190	NA
25-2021	Elemen Schl Tchrs Ex Special Ed	Bachelor's degree	42,330	NA
25-2022	Middle School Tchrs/Ex Sp./Voc Ed	Bachelor's degree	42,760	NA
25-2023	Vocational Ed Tchrs/Middle School	Bachelor's degree	44,450	NA
25-2031	Secondary Schl Tchrs Ex Sp/Voc Ed	Bachelor's degree	42,540	NA
25-2032	Voc Ed Teachers/Secondary Schl	Bachelor's degree	43,400	NA
25-2041	Sp Ed Tchrs/Presch/Kind/Elem Schl	Bachelor's degree	43,020	NA
25-2042	Special Ed Teachers/Middle School	Bachelor's degree	40,710	NA
25-2043	Special Ed Teachers/Sec School	Bachelor's degree	43,690	NA
25-3000	Other Teachers and Instructors		NA	NA
25-3011	Adult Liter/Rem Ed/GED Tchrs/Inst	Bachelor's degree	48,580	17.65 - 27.69
25-3021	Self-Enrichment Ed Teachers	Work experience in related occ	27,090	9.72 - 14.71
25-3999 <sup>(7)</sup>	Tchrs/Prim/Sec/Adult/All Other	Bachelor's degree	NA	NA
25-4000	Librarians, Curators, and Archivists		NA	NA
25-4010	Archivists/Curators/Museum Techs	Master's degree	35,230	12.14 - 20.90
25-4021	Librarians	Master's degree	43,880	17.16 - 25.65
25-4031	Library Techs	Short-term on-the-job training	23,790	8.65 - 13.89
25-9000	Other Ed, Training, and Library Occs		NA	NA
25-9011	Audio-Visual Collections Specialists	Moderate-term on-the-job training	24,880	6.38 - 15.56
25-9021	Farm/Home Management Advisors	Bachelor's degree	63,850	14.23 - 36.14
25-9031	Instructional Coordinators	Master's degree	51,180	16.03 - 32.77
25-9041	Teacher Assts	Associate degree	22,050	NA
25-9199 <sup>(7)</sup>	Libr/Mus/Trng/Other Ed Wrkrs/AO	Bachelor's degree	NA	NA
<b>27-0000</b>	<b>Arts/Design/Entertainment/Sports/Media</b>		<b>35,580</b>	<b>10.10 - 21.32</b>
27-1000	Art and Design Wrkrs		NA	NA
27-1011	Art Directors	Degree & work experience	60,360	19.82 - 35.96
27-1013	Fine Artists/Incl Pntrs/Sculptrs/Illstrs	Long-term on-the-job training	35,410	11.38 - 21.79
27-1014	Multi-Media Artists/Animators	Bachelor's degree	44,330	15.32 - 24.71
27-1021	Commercial/Industrial Designers	Bachelor's degree	48,710	16.71 - 30.17
27-1022	Fashion Designers	Bachelor's degree	49,310	13.77 - 22.17
27-1023	Floral Designers	Moderate-term on-the-job training	19,600	7.69 - 10.72
27-1024	Graphic Designers	Bachelor's degree	37,720	13.63 - 21.47
27-1025	Interior Designers	Bachelor's degree	33,280	10.84 - 19.11
27-1026	Merch Display/Window Trimmers	Moderate-term on-the-job training	22,590	8.17 - 12.56
27-1027	Set/Exhibit Designers	Bachelor's degree	30,220	11.57 - 17.33
27-1099 <sup>(7)</sup>	Art & Design Wrkrs, All Other	Bachelor's degree	NA	NA

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
27-2000	Entertainers/Performers/Sports/Rel Wrks	14,960	16,370	1,410	9.4%	140	320	460
27-2011	Actors	860	940	80	9.3%	10	10	20
27-2012	Producers/Directors	1,160	1,190	30	2.6%	0	20	20
27-2021	Athletes/Sports Competitors	190	210	20	10.5%	0	0	0
27-2022	Coaches/Scouts	4,660	5,230	570	12.2%	60	90	150
27-2023	Umpires/Refs/Other Sports Officials	2,000	2,260	260	13.0%	30	40	70
27-2031	Dancers	190	190	0	0.0%	0	10	10
27-2032	Choreographers	590	650	60	10.2%	10	40	50
27-2041	Music Directors/Composers	1,610	1,660	50	3.1%	10	30	40
27-2042	Musicians/Singers	3,540	3,900	360	10.2%	40	70	110
27-2099	Entnrs/Perfrms/Sports/Rel Wrk/AO	160	160	0	0.0%	0	0	0
27-3000	Media and Communication Wrks	14,930	16,730	1,800	12.1%	180	290	470
27-3010	Announcers	2,030	1,730	(300)	-14.8%	0	50	50
27-3020	News Analysts/Reprtrs/Correspond	1,390	1,370	(20)	-1.4%	0	30	30
27-3031	Public Relations Specialists	4,540	5,740	1,200	26.4%	120	70	190
27-3041	Editors	2,210	2,340	130	5.9%	10	50	60
27-3042	Technical Writers	920	1,120	200	21.7%	20	30	50
27-3043	Writers/Authors	2,470	2,810	340	13.8%	30	40	70
27-3091	Interpreters/Translators	730	920	190	26.0%	20	10	30
27-3099	Media/Communication Wrks/AO	630	720	90	14.3%	10	10	20
27-4000	Media/Communication Eqp Wrks	4,190	4,650	460	11.0%	50	90	140
27-4011	Audio/Video Equipment Techs	560	620	60	10.7%	10	10	20
27-4012	Broadcast Techs	570	600	30	5.3%	0	10	10
27-4013	Radio Operators	0	0	0	0.0%	0	0	0
27-4014	Sound Engineering Techs	180	220	40	22.2%	0	10	10
27-4021	Photographers	2,220	2,480	260	11.7%	30	50	80
27-4031	Camera Oprs/TV/Video/Motion Pict	330	330	0	0.0%	0	10	10
27-4032	Film/Video Editors	180	210	30	16.7%	0	0	0
27-4099	Media/Comm Equipmnt Wrks/AO	160	190	30	18.8%	0	0	0
<b>29-0000</b>	<b>Healthcare Practitioners &amp; Techncl Occs</b>	<b>133,810</b>	<b>171,990</b>	<b>38,180</b>	<b>28.5%</b>	<b>3,820</b>	<b>2,510</b>	<b>6,330</b>
29-1000	Health Diagnosing & Treating Practitnrs	83,770	107,380	23,610	28.2%	2,360	1,630	3,990
29-1011	Chiropractors	1,630	2,060	430	26.4%	40	30	70
29-1020	Dentists	4,220	4,340	120	2.8%	10	70	80
29-1031	Dietitians/Nutritionists	1,060	1,240	180	17.0%	20	30	50
29-1041	Optometrists	500	600	100	20.0%	10	10	20
29-1051	Pharmacists	4,000	5,080	1,080	27.0%	110	80	190
29-1061	Anesthesiologists	430	530	100	23.3%	10	10	20
29-1062	Family/General Practitioners	2,510	3,100	590	23.5%	60	30	90
29-1063	Internists, General	2,820	3,510	690	24.5%	70	40	110
29-1064	Obstetricians/Gynecologists	260	330	70	26.9%	10	0	10
29-1065	Pediatricians, General	210	260	50	23.8%	10	0	10

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
27-2000	Entertainers/Performers/Sports/Rel Wrks		NA	NA
27-2011	Actors	Long-term on-the-job training	36,880	NA
27-2012	Producers/Directors	Degree & work experience	44,320	NA
27-2021	Athletes/Sports Competitors	Long-term on-the-job training	NA	NA
27-2022	Coaches/Scouts	Long-term on-the-job training	30,160	NA
27-2023	Umpires/Refs/Other Sports Officials	Long-term on-the-job training	NA	NA
27-2031	Dancers	Long-term on-the-job training	NA	NA
27-2032	Choreographers	Work experience in related occ	29,850	11.22 - 17.75
27-2041	Music Directors/Composers	Degree & work experience	29,390	NA
27-2042	Musicians/Singers	Long-term on-the-job training	57,710	NA
27-2099	Entnrs/Perfrms/Sports/Rel Wrk/AO	Long-term on-the-job training	NA	NA
27-3000	Media and Communication Wrks		NA	NA
27-3010	Announcers	Long-term on-the-job training	30,550	8.26 - 17.81
27-3020	News Analysts/Reprtrs/Correspond	Degree & work experience	29,000	9.53 - 15.69
27-3031	Public Relations Specialists	Bachelor's degree	41,940	14.07 - 25.61
27-3041	Editors	Bachelor's degree	42,640	14.34 - 23.89
27-3042	Technical Writers	Bachelor's degree	49,140	18.29 - 26.55
27-3043	Writers/Authors	Bachelor's degree	39,470	9.42 - 23.97
27-3091	Interpreters/Translators	Long-term on-the-job training	34,910	12.31 - 20.19
27-3099	Media/Communication Wrks/AO	Long-term on-the-job training	NA	NA
27-4000	Media/Communication Eqp Wrks		NA	NA
27-4011	Audio/Video Equipment Techs	Long-term on-the-job training	32,730	8.60 - 21.48
27-4012	Broadcast Techs	Postsecondary vocational training	28,770	9.04 - 18.31
27-4013	Radio Operators	Moderate-term on-the-job training	NA	NA
27-4014	Sound Engineering Techs	Postsecondary vocational training	50,090	16.47 - 30.81
27-4021	Photographers	Bachelor's degree	28,900	9.85 - 16.82
27-4031	Camera Oprs/TV/Video/Motion Pict	Moderate-term on-the-job training	26,250	7.19 - 16.65
27-4032	Film/Video Editors	Bachelor's degree	35,260	12.75 - 20.58
27-4099	Media/Comm Equipmnt Wrks/AO	Moderate-term on-the-job training	NA	NA
<b>29-0000</b>	<b>Healthcare Practitioners &amp; Techncl Occs</b>		<b>53,460</b>	<b>16.27 - 27.17</b>
29-1000	Health Diagnosing & Treating Practitnrs		NA	NA
29-1011	Chiropractors	First professional degree	90,240	28.68 - 60.52
29-1020	Dentists	First professional degree	110,320	16.58 - #
29-1031	Dietitians/Nutritionists	Bachelor's degree	42,130	16.99 - 23.81
29-1041	Optometrists	First professional degree	87,050	30.30 - 50.46
29-1051	Pharmacists	First professional degree	82,440	36.58 - 43.80
29-1061	Anesthesiologists	First professional degree	151,670	58.77 - #
29-1062	Family/General Practitioners	First professional degree	153,820	58.31 - #
29-1063	Internists, General	First professional degree	169,860	65.80 - #
29-1064	Obstetricians/Gynecologists	First professional degree	205,070	# - #
29-1065	Pediatricians, General	First professional degree	159,840	62.66 - #

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
29-1066	Psychiatrists	360	420	60	16.7%	10	10	20
29-1067	Surgeons	1,140	1,420	280	24.6%	30	20	50
29-1069	Physicians/Surgeons, All Other	2,580	2,950	370	14.3%	40	40	80
29-1071	Physician Assistants	1,130	1,720	590	52.2%	60	20	80
29-1081	Podiatrists	170	200	30	17.6%	0	0	0
29-1111	Registered Nurses	46,530	61,130	14,600	31.4%	1,460	970	2,430
29-1121	Audiologists	430	490	60	14.0%	10	10	20
29-1122	Occupational Therapists	2,800	3,750	950	33.9%	100	40	140
29-1123	Physical Therapists	3,270	4,410	1,140	34.9%	110	30	140
29-1124	Radiation Therapists	440	620	180	40.9%	20	10	30
29-1125	Recreational Therapists	730	800	70	9.6%	10	20	30
29-1126	Respiratory Therapists	1,400	2,010	610	43.6%	60	50	110
29-1127	Speech-Language Pathologists	2,580	3,170	590	22.9%	60	60	120
29-1131	Veterinarians	1,830	2,280	450	24.6%	50	40	90
29-1199	Hlth Diagnsg/Treatng Practnrs/AO	740	940	200	27.0%	20	20	40
29-2000	Health Technologists and Techs	46,250	59,850	13,600	29.4%	1,360	810	2,170
29-2011	Medical/Clinical Lab Technologists	3,100	3,890	790	25.5%	80	80	160
29-2012	Medical/Clinical Lab Techs	2,080	2,600	520	25.0%	50	60	110
29-2021	Dental Hygienists	3,650	5,200	1,550	42.5%	150	30	180
29-2031	Cardiovascular Technlgst/Techncns	620	870	250	40.3%	30	10	40
29-2032	Diagnostic Medical Sonographers	830	1,050	220	26.5%	20	20	40
29-2033	Nuclear Medicine Technologists	380	490	110	28.9%	10	10	20
29-2034	Radiologic Technologists/Techs	3,650	4,660	1,010	27.7%	100	70	170
29-2041	Emergency Med Techs/Paramedics	4,910	6,290	1,380	28.1%	140	60	200
29-2051	Dietetic Techs	410	510	100	24.4%	10	10	20
29-2052	Pharmacy Techs	3,790	4,900	1,110	29.3%	110	50	160
29-2053	Psychiatric Techs	580	610	30	5.2%	0	10	10
29-2054	Respiratory Therapy Techs	700	1,010	310	44.3%	30	10	40
29-2055	Surgical Technologists	1,710	2,320	610	35.7%	60	20	80
29-2056	Veterinary Technologists/Techs	1,290	1,830	540	41.9%	50	20	70
29-2061	Licensed Pract/Vocational Nurses	12,620	15,180	2,560	20.3%	260	280	540
29-2071	Medical Records/Health Info Techs	3,900	6,020	2,120	54.4%	210	60	270
29-2081	Opticians/Dispensing	1,950	2,320	370	19.0%	40	30	70
29-2091	Orthotists/Prosthetists	100	110	10	10.0%	0	0	0
29-9000	Other Healthcare Pract/Techncl Occs	1,130	1,380	250	22.1%	30	30	60
29-9010	Occ Health/Safety Spec/Techs	780	920	140	17.9%	10	20	30
29-9091	Athletic Trainers	350	460	110	31.4%	10	10	20
29-9199 <sup>(7)</sup>	Health Prof/Tech, All Other	2,670	3,390	720	27.0%	70	50	120

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
29-1066	Psychiatrists	First professional degree	136,710	40.29 - #
29-1067	Surgeons	First professional degree	190,130	# - #
29-1069	Physicians/Surgeons, All Other	First professional degree	NA	NA
29-1071	Physician Assistants	Bachelor's degree	65,910	26.66 - 36.50
29-1081	Podiatrists	First professional degree	105,950	39.75 - 54.93
29-1111	Registered Nurses	Bachelor's degree <sup>(10)</sup>	49,180	20.07 - 26.77
29-1121	Audiologists	Master's degree	52,100	20.85 - 28.68
29-1122	Occupational Therapists	Bachelor's degree	49,190	19.77 - 26.86
29-1123	Physical Therapists	Master's degree	58,970	23.95 - 32.54
29-1124	Radiation Therapists	Associate degree	50,320	20.64 - 27.54
29-1125	Recreational Therapists	Bachelor's degree	29,530	10.25 - 16.89
29-1126	Respiratory Therapists	Associate degree	41,540	17.64 - 22.31
29-1127	Speech-Language Pathologists	Master's degree	49,880	19.50 - 27.46
29-1131	Veterinarians	First professional degree	62,170	21.76 - 34.44
29-1199	Hlth Diagnsg/Treatng Practnrs/AO	First professional degree	NA	NA
29-2000	Health Technologists and Techs		NA	NA
29-2011	Medical/Clinical Lab Technologists	Bachelor's degree	44,180	18.65 - 24.16
29-2012	Medical/Clinical Lab Techs	Associate degree	32,380	13.24 - 17.39
29-2021	Dental Hygienists	Associate degree	51,200	23.32 - 26.94
29-2031	Cardiovascular Technlgst/Tchncls	Associate degree	36,270	12.60 - 21.56
29-2032	Diagnostic Medical Sonographers	Associate degree	57,380	22.35 - 32.84
29-2033	Nuclear Medicine Technologists	Associate degree	50,930	20.98 - 27.91
29-2034	Radiologic Technologists/Techs	Associate degree	39,730	16.05 - 21.88
29-2041	Emergency Med Techs/Paramedics	Postsecondary vocational training	22,620	7.75 - 12.68
29-2051	Dietetic Techs	Moderate-term on-the-job training	22,600	8.32 - 13.02
29-2052	Pharmacy Techs	Moderate-term on-the-job training	22,900	9.19 - 12.75
29-2053	Psychiatric Techs	Postsecondary vocational training	30,690	11.55 - 17.49
29-2054	Respiratory Therapy Techs	Postsecondary vocational training	36,610	15.28 - 20.16
29-2055	Surgical Technologists	Postsecondary vocational training	35,470	14.61 - 19.54
29-2056	Veterinary Technologists/Techs	Associate degree	24,380	10.04 - 13.27
29-2061	Licensed Pract/Vocational Nurses	Postsecondary vocational training	34,080	14.22 - 18.33
29-2071	Medical Records/Health Info Techs	Associate degree	25,580	9.67 - 14.08
29-2081	Opticians/Dispensing	Long-term on-the-job training	27,320	10.11 - 15.34
29-2091	Orthotists/Prosthetists	Bachelor's degree	52,970	18.40 - 32.00
29-9000	Other Healthcare Pract/Techncl Occs		NA	NA
29-9010	Occ Health/Safety Spec/Techs	Bachelor's degree	47,110	17.59 - 26.99
29-9091	Athletic Trainers	Bachelor's degree	37,720	NA
29-9199 <sup>(7)</sup>	Health Prof/Tech, All Other	Associate degree	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
<b>31-0000</b>	<b>Healthcare Support Occupations</b>	<b>84,610</b>	<b>112,370</b>	<b>27,760</b>	<b>32.8%</b>	<b>2,780</b>	<b>1,320</b>	<b>4,100</b>
31-1000	Nursing/Psychiatric/Home Health Aides	54,810	71,350	16,540	30.2%	1,650	720	2,370
31-1011	Home Health Aides	11,800	17,750	5,950	50.4%	590	160	750
31-1012	Nursing Aides/Orderlies/Attendants	41,970	52,280	10,310	24.6%	1,030	550	1,580
31-1013	Psychiatric Aides	1,040	1,330	290	27.9%	30	10	40
31-2000	Occupation/Physical Therapist Asst/Aides	2,930	4,160	1,230	42.0%	120	50	170
31-2011	Occupational Therapist Assts	610	840	230	37.7%	20	10	30
31-2012	Occupational Therapist Aides	200	250	50	25.0%	10	0	10
31-2021	Physical Therapist Assts	1,310	1,870	560	42.7%	60	20	80
31-2022	Physical Therapist Aides	820	1,200	380	46.3%	40	10	50
31-9000	Other Healthcare Support Occupations	26,870	36,860	9,990	37.2%	1,000	550	1,550
31-9011	Massage Therapists	2,640	3,450	810	30.7%	80	50	130
31-9091	Dental Assts	5,700	8,120	2,420	42.5%	240	160	400
31-9092	Medical Assts	6,110	9,660	3,550	58.1%	360	110	470
31-9093	Medical Equipment Preparers	510	620	110	21.6%	10	10	20
31-9094	Medical Transcriptionists	3,840	4,860	1,020	26.6%	100	70	170
31-9095	Pharmacy Aides	1,720	2,000	280	16.3%	30	30	60
31-9096	Vet Assts/Lab Animal Caretakers	840	1,050	210	25.0%	20	20	40
31-9099	Healthcare Support Wrks/All Other	5,510	7,110	1,600	29.0%	160	100	260
<b>33-0000</b>	<b>Protective Service Occupations</b>	<b>48,800</b>	<b>56,960</b>	<b>8,160</b>	<b>16.7%</b>	<b>820</b>	<b>1,420</b>	<b>2,240</b>
33-1000	First-Line Sup/Mgrs of Protective Serv Wrks	3,840	4,280	440	11.5%	40	130	170
33-1011	First-Line Sup/Mgr of Corr Offcrs	600	670	70	11.7%	10	20	30
33-1012	First-Line Sup/Mgr of Police/Detect	1,360	1,480	120	8.8%	10	50	60
33-1021	F-L Sup/Mgr Fire Fght/Prevent Wrk	1,070	1,200	130	12.1%	10	40	50
33-1099	F-L Sups/Mgrs/Protect Svc Wrks/AO	810	930	120	14.8%	10	20	30
33-2000	Fire Fighting and Prevention Wrks	7,110	8,190	1,080	15.2%	110	210	320
33-2011	Fire Fighters	6,850	7,910	1,060	15.5%	110	200	310
33-2020 <sup>(b)</sup>	Fire Inspectors	260	270	10	3.8%	0	10	10
33-2021 <sup>(b)</sup>	Fire Inspect/Invest	(b)	(b)	(b)	(b)	(b)	(b)	(b)
33-2022 <sup>(b)</sup>	Forest Fire Inspect/Prevent Spec	(b)	(b)	(b)	(b)	(b)	(b)	(b)
33-3000	Law Enforcement Wrks	19,980	23,270	3,290	16.5%	330	480	810
33-3011	Bailiffs	240	260	20	8.3%	0	10	10
33-3012	Correctional Officers/Jailers	6,830	7,920	1,090	16.0%	110	140	250
33-3021	Detectives/Criminal Investigators	1,600	1,790	190	11.9%	20	40	60
33-3031	Fish/Game Wardens	190	190	0	0.0%	0	10	10
33-3041	Parking Enforcement Wrks	250	260	10	4.0%	0	10	10
33-3051	Police/Sheriff's Patrol Officers	10,850	12,840	1,990	18.3%	200	280	480
33-3052	Transit/Railroad Police	10	10	0	0.0%	0	0	0

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
<b>31-0000</b>	<b>Healthcare Support Occupations</b>		<b>22,950</b>	<b>9.13 - 12.64</b>
31-1000	Nursing/Psychiatric/Home Health Aides		NA	NA
31-1011	Home Health Aides	Short-term on-the-job training	20,380	8.30 - 10.74
31-1012	Nursing Aides/Orderlies/Attendants	Short-term on-the-job training	21,710	9.00 - 11.83
31-1013	Psychiatric Aides	Short-term on-the-job training	NA	NA
31-2000	Occupation/Physical Therapist Asst/Aides		NA	NA
31-2011	Occupational Therapist Assts	Associate degree	33,750	13.92 - 18.00
31-2012	Occupational Therapist Aides	Short-term on-the-job training	26,380	10.61 - 14.51
31-2021	Physical Therapist Assts	Associate degree	33,980	14.26 - 19.02
31-2022	Physical Therapist Aides	Short-term on-the-job training	22,470	9.12 - 12.39
31-9000	Other Healthcare Support Occupations		NA	NA
31-9011	Massage Therapists	Postsecondary vocational training	34,020	10.91 - 22.60
31-9091	Dental Assts	Moderate-term on-the-job training	25,490	10.26 - 13.99
31-9092	Medical Assts	Moderate-term on-the-job training	25,550	10.53 - 13.63
31-9093	Medical Equipment Preparers	Short-term on-the-job training	24,690	10.03 - 13.43
31-9094	Medical Transcriptionists	Postsecondary vocational training	28,460	11.71 - 15.75
31-9095	Pharmacy Aides	Short-term on-the-job training	21,520	8.44 - 11.80
31-9096	Vet Assts/Lab Animal Caretakers	Short-term on-the-job training	18,760	7.65 - 10.38
31-9099	Healthcare Support Wrks/All Other	Short-term on-the-job training	NA	NA
<b>33-0000</b>	<b>Protective Service Occupations</b>		<b>32,430</b>	<b>9.55 - 21.01</b>
33-1000	First-Line Sup/Mgrs of Protective Serv Wrks		NA	NA
33-1011	First-Line Sup/Mgr of Corr Offcrs	Work experience in related occ	49,300	20.55 - 26.26
33-1012	First-Line Sup/Mgr of Police/Detect	Work experience in related occ	56,510	22.97 - 32.14
33-1021	F-L Sup/Mgr Fire Fght/Prevent Wrk	Work experience in related occ	44,670	10.37 - 30.38
33-1099	F-L Sups/Mgrs/Protect Svc Wrks/AO	Work experience in related occ	NA	NA
33-2000	Fire Fighting and Prevention Wrks		NA	NA
33-2011	Fire Fighters	Long-term on-the-job training	30,990	8.89 - 21.35
33-2020 <sup>(8)</sup>	Fire Inspectors		NA	NA
33-2021 <sup>(8)</sup>	Fire Inspect/Invest	Work experience in related occ	39,800	8.05 - 26.14
33-2022 <sup>(8)</sup>	Forest Fire Inspect/Prevent Spec	Work experience in related occ	NA	NA
33-3000	Law Enforcement Wrks		NA	NA
33-3011	Bailiffs	Moderate-term on-the-job training	38,560	9.79 - 26.16
33-3012	Correctional Officers/Jailers	Moderate-term on-the-job training	33,000	14.14 - 17.59
33-3021	Detectives/Criminal Investigators	Work experience in related occ	51,690	21.90 - 27.63
33-3031	Fish/Game Wardens	Long-term on-the-job training	40,240	15.72 - 23.54
33-3041	Parking Enforcement Wrks	Short-term on-the-job training	28,360	11.58 - 16.20
33-3051	Police/Sheriff's Patrol Officers	Long-term on-the-job training	42,460	17.38 - 24.29
33-3052	Transit/Railroad Police	Long-term on-the-job training	NA	NA

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
33-9000	Other Protective Service Wrks	17,880	21,230	3,350	18.7%	340	610	950
33-9011	Animal Control Wrks	100	110	10	10.0%	0	10	10
33-9021	Private Detectives/Investigators	510	620	110	21.6%	10	10	20
33-9031	Gaming Surveillance/Investogators	240	250	10	4.2%	0	10	10
33-9032	Security Guards	10,630	13,050	2,420	22.8%	240	230	470
33-9091	Crossing Guards	2,440	2,840	400	16.4%	40	80	120
33-9099	Protective Service Wrks/All Other	3,960	4,350	390	9.8%	40	280	320
<b>35-0000</b>	<b>Food Preparation &amp; Serving Occupations</b>	<b>225,410</b>	<b>252,710</b>	<b>27,300</b>	<b>12.1%</b>	<b>2,730</b>	<b>8,930</b>	<b>11,660</b>
35-1000	First-Line Sups/Mgrs Food Prep/Srv Wrks	16,930	18,950	2,020	11.9%	200	420	620
35-1011	Chefs/Head Cooks	3,460	3,880	420	12.1%	40	100	140
35-1012	F-L Sups/Mgrs Food Prep/Srv Wrks	13,470	15,070	1,600	11.9%	160	320	480
35-2000	Cooks and Food Preparation Wrks	57,160	62,460	5,300	9.3%	530	1,840	2,370
35-2011	Cooks/Fast Food	11,850	12,190	340	2.9%	30	370	400
35-2012	Cooks/Institution/Cafeteria	9,290	9,180	(110)	-1.2%	0	290	290
35-2013	Cooks/Private Household	60	60	0	0.0%	0	0	0
35-2014	Cooks/Restaurant	12,240	13,800	1,560	12.7%	160	380	540
35-2015	Cooks/Short Order	7,320	7,900	580	7.9%	60	230	290
35-2021	Food Prep Wrks	16,400	19,340	2,940	17.9%	290	580	870
35-3000	Food and Beverage Serving Wrks	122,480	140,040	17,560	14.3%	1,760	5,720	7,480
35-3011	Bartenders	22,010	23,170	1,160	5.3%	120	870	990
35-3021	Comb Food Prep/Serv Wrk/Incl Fast	44,560	53,510	8,950	20.1%	900	1,930	2,830
35-3022	Cntr Atts/Cafeter/Fd Conc/Coff Shop	7,370	8,340	970	13.2%	100	480	580
35-3031	Waiters/Waitresses	44,980	51,120	6,140	13.7%	610	2,310	2,920
35-3041	Food Servers/Nonrestaurant	3,560	3,910	350	9.8%	40	120	160
35-9000	Other Food Prep/Serving Wrks	28,830	31,260	2,430	8.4%	240	950	1,190
35-9011	Dining Rm/Cafeter Atts/Bar Helpers	8,490	9,320	830	9.8%	80	280	360
35-9021	Dishwashers	12,920	13,580	660	5.1%	70	440	510
35-9031	Hosts Rest/Lounge/Coff Shop	5,020	5,680	660	13.1%	70	160	230
35-9099	Food Prep/Serving Rel Wrks/AO	2,410	2,680	270	11.2%	30	80	110
<b>37-0000</b>	<b>Build &amp; Grounds Cleaning/Maint Occs</b>	<b>110,760</b>	<b>127,000</b>	<b>16,240</b>	<b>14.7%</b>	<b>1,620</b>	<b>2,220</b>	<b>3,840</b>
37-1000	F-L Sup/Mgrs Bldg/Grounds Clean/Maint	7,390	8,530	1,140	15.4%	110	140	250
37-1011	F-L Sups/Mgrs Hskpng/Janitr Wrks	4,870	5,550	680	14.0%	70	120	190
37-1012	F-L Sup/Mgr Land/Lawn/Grnds Wrk	2,520	2,980	460	18.3%	50	20	70
37-2000	Bldg Cleaning/Pest Control Wrks	81,420	92,840	11,420	14.0%	1,140	1,600	2,740
37-2011	Janitors/Cleanrs Ex Maids/Hskpng	52,710	60,420	7,710	14.6%	770	1,000	1,770
37-2012	Maids/Housekpng Cleaners	28,290	31,940	3,650	12.9%	370	590	960
37-2021	Pest Control Wrks	420	490	70	16.7%	10	10	20
37-3000	Grounds Maintenance Wrks	21,960	25,630	3,670	16.7%	370	480	850
37-3011	Landscaping/Grndskpng Wrks	19,910	23,300	3,390	17.0%	340	430	770
37-3012	Pesticide Hndlr/Sprays/Apps Veg	570	630	60	10.5%	10	10	20

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
33-9000	Other Protective Service Wrks		NA	NA
33-9011	Animal Control Wrks	Moderate-term on-the-job training	21,490	7.65 - 11.53
33-9021	Private Detectives/Investigators	Work experience in related occ	29,820	9.36 - 17.65
33-9031	Gaming Surveillance/Investogators	Moderate-term on-the-job training	26,050	9.86 - 14.46
33-9032	Security Guards	Short-term on-the-job training	20,810	8.07 - 11.01
33-9091	Crossing Guards	Short-term on-the-job training	19,670	7.71 - 10.63
33-9099	Protective Service Wrks/All Other	Short-term on-the-job training	NA	NA
<b>35-0000</b>	<b>Food Preparation &amp; Serving Occupations</b>		<b>17,090</b>	<b>6.39 - 9.29</b>
35-1000	First-Line Sups/Mgrs Food Prep/Srv Wrks		NA	NA
35-1011	Chefs/Head Cooks	Postsecondary vocational training	26,940	9.52 - 14.74
35-1012	F-L Sups/Mgrs Food Prep/Srv Wrks	Work experience in related occ	26,460	9.43 - 15.25
35-2000	Cooks and Food Preparation Wrks		NA	NA
35-2011	Cooks/Fast Food	Short-term on-the-job training	15,250	6.25 - 8.25
35-2012	Cooks/Institution/Cafeteria	Long-term on-the-job training	21,220	8.66 - 11.58
35-2013	Cooks/Private Household	Long-term on-the-job training	NA	NA
35-2014	Cooks/Restaurant	Long-term on-the-job training	19,490	7.71 - 10.70
35-2015	Cooks/Short Order	Short-term on-the-job training	16,270	6.35 - 9.08
35-2021	Food Prep Wrks	Short-term on-the-job training	17,410	7.19 - 9.49
35-3000	Food and Beverage Serving Wrks		NA	NA
35-3011	Bartenders	Short-term on-the-job training	17,600	6.92 - 9.35
35-3021	Comb Food Prep/Serv Wrk/Incl Fast	Short-term on-the-job training	15,700	6.28 - 8.52
35-3022	Cntr Atts/Cafeter/Fd Conc/Coff Shop	Short-term on-the-job training	15,210	6.29 - 8.22
35-3031	Waiters/Waitresses	Short-term on-the-job training	15,260	5.95 - 7.86
35-3041	Food Servers/Nonrestaurant	Short-term on-the-job training	17,990	7.40 - 9.84
35-9000	Other Food Prep/Serving Wrks		NA	NA
35-9011	Dining Rm/Cafeter Atts/Bar Helpers	Short-term on-the-job training	14,830	6.05 - 8.00
35-9021	Dishwashers	Short-term on-the-job training	14,740	6.16 - 7.98
35-9031	Hosts Rest/Lounge/Coff Shop	Short-term on-the-job training	16,760	6.54 - 9.00
35-9099	Food Prep/Serving Rel Wrks/AO	Short-term on-the-job training	NA	NA
<b>37-0000</b>	<b>Build &amp; Grounds Cleaning/Maint Occs</b>		<b>21,250</b>	<b>7.79 - 11.72</b>
37-1000	F-L Sup/Mgrs Bldg/Grounds Clean/Maint		NA	NA
37-1011	F-L Sups/Mgrs Hskpng/Janitr Wrks	Work experience in related occ	30,480	10.94 - 17.64
37-1012	F-L Sup/Mgr Land/Lawn/Grnds Wrk	Work experience in related occ	36,060	12.25 - 21.34
37-2000	Bldg Cleaning/Pest Control Wrks		NA	NA
37-2011	Janitors/Cleanrs Ex Maids/Hskpng	Short-term on-the-job training	20,940	7.84 - 11.57
37-2012	Maids/Housekpng Cleaners	Short-term on-the-job training	17,430	7.35 - 9.22
37-2021	Pest Control Wrks	Moderate-term on-the-job training	28,590	10.22 - 16.44
37-3000	Grounds Maintenance Wrks		NA	NA
37-3011	Landscaping/Grndskpng Wrks	Short-term on-the-job training	23,010	8.29 - 13.17
37-3012	Pesticide Hndlr/Sprays/Apps Veg	Moderate-term on-the-job training	24,400	9.83 - 13.43

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replace-ments <sup>(2)</sup>	Total <sup>(3)</sup>
37-3013	Tree Trimmers/Pruners	340	360	20	5.9%	0	10	10
37-9099 <sup>(7)</sup>	Bldg/Grnds Cleanng/Maint Wrks AO	1,140	1,350	210	18.4%	20	20	40
<b>39-0000</b>	<b>Personal Care and Service Occupations</b>	<b>92,340</b>	<b>111,010</b>	<b>18,670</b>	<b>20.2%</b>	<b>1,870</b>	<b>2,130</b>	<b>4,000</b>
39-1000	Suprvrs, Personal Care & Service Wrks	5,580	5,920	340	6.1%	30	140	170
39-1011	F-L Sups/Mgrs of Gaming Wrks	690	680	(10)	-1.4%	0	20	20
39-1012	Slot Key Persons	420	400	(20)	-4.8%	0	10	10
39-1021	F-L Sups/Mgrs of Persnl Serv Wrks	4,470	4,830	360	8.1%	40	110	150
39-2000	Animal Care and Service Wrks	2,580	3,150	570	22.1%	60	60	120
39-2011	Animal Trainers	200	280	80	40.0%	10	0	10
39-2021	Nonfarm Animal Caretakers	2,380	2,870	490	20.6%	50	60	110
39-3000	Entertainment Atts & Related Wrks	10,730	11,890	1,160	10.8%	120	360	480
39-3011	Gaming Dealers	1,170	1,170	0	0.0%	0	40	40
39-3012	Gaming/Sports BookRunners	370	410	40	10.8%	0	10	10
39-3021	Motion Picture Projectionists	240	230	(10)	-4.2%	0	10	10
39-3031	Ushers/Lobby Attend/Ticket Takers	1,550	1,650	100	6.5%	10	90	100
39-3091	Amusement/Recreation Attendants	6,020	6,770	750	12.5%	80	170	250
39-3092	Costume Attendants	40	40	0	0.0%	0	0	0
39-3093	Lockr Rm/Coatrm/Dress Rm Attend	410	490	80	19.5%	10	10	20
39-3199	Gaming Wrks, AO	950	1,140	190	20.0%	20	30	50
39-4000	Funeral Service Wrks	560	670	110	19.6%	10	10	20
39-4011	Embalmers	110	120	10	9.1%	0	0	0
39-4021	Funeral Attendants	450	550	100	22.2%	10	10	20
39-5000	Personal Appearance Wrks	20,350	23,250	2,900	14.3%	290	400	690
39-5011	Barbers	920	990	70	7.6%	10	30	40
39-5012	Hairdress/Hairstyl/Cosmetologists	18,180	20,750	2,570	14.1%	260	350	610
39-5092	Manicurists/Pedicurists	610	750	140	23.0%	10	10	20
39-5093	Shampooers	70	90	20	28.6%	0	0	0
39-5094	Skin Care Specialists	560	680	120	21.4%	10	10	20
39-6000	Transportation/Tourism/Lodging Atts	2,600	2,960	360	13.8%	40	60	100
39-6011	Baggage Porters and Bellhops	640	750	110	17.2%	10	20	30
39-6012	Concierges	350	410	60	17.1%	10	10	20
39-6021	Tour Guides and Escorts	620	650	30	4.8%	0	20	20
39-6022	Travel Guides	60	50	(10)	-16.7%	0	0	0
39-6031	Flight Attendants	780	900	120	15.4%	10	10	20
39-6032	Trans Atts/Ex Flight Atts/Bag Porters	150	200	50	33.3%	10	0	10
39-9000	Other Personal Care/Service Wrks	49,950	63,180	13,230	26.5%	1,320	1,100	2,420
39-9011	Child Care Wrks	19,080	21,510	2,430	12.7%	240	520	760
39-9021	Personal and Home Care Aides	17,630	25,620	7,990	45.3%	800	280	1,080
39-9031	Fitness Trainers/Aerobics Instruct	3,920	5,100	1,180	30.1%	120	90	210
39-9032	Recreation Wrks	7,010	7,990	980	14.0%	100	160	260
39-9041	Residential Advisors	770	1,020	250	32.5%	30	20	50
39-9099	Personal Care/Service Wrks/AO	1,530	1,930	400	26.1%	40	30	70

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
37-3013	Tree Trimmers/Pruners	Short-term on-the-job training	27,610	11.13 - 13.64
37-9099 <sup>(7)</sup>	Bldg/Grnds Cleanng/Maint Wrkrs AO	Short-term on-the-job training	NA	NA
<b>39-0000</b>	<b>Personal Care and Service Occupations</b>		<b>20,770</b>	<b>7.41 - 10.91</b>
39-1000	Suprvrs, Personal Care & Service Wrkrs		NA	NA
39-1011	F-L Sups/Mgrs of Gaming Wrkrs	Work experience in related occ	38,390	15.79 - 21.50
39-1012	Slot Key Persons	Postsecondary vocational training	27,250	10.99 - 14.21
39-1021	F-L Sups/Mgrs of Persnl Serv Wrkrs	Work experience in related occ	33,090	11.49 - 18.18
39-2000	Animal Care and Service Wrkrs		NA	NA
39-2011	Animal Trainers	Moderate-term on-the-job training	26,830	11.39 - 13.75
39-2021	Nonfarm Animal Caretakers	Short-term on-the-job training	18,880	6.90 - 10.18
39-3000	Entertainment Atts & Related Wrkrs		NA	NA
39-3011	Gaming Dealers	Postsecondary vocational training	21,120	6.36 - 9.35
39-3012	Gaming/Sports BookRunners	Postsecondary vocational training	NA	NA
39-3021	Motion Picture Projectionists	Short-term on-the-job training	21,950	7.30 - 10.97
39-3031	Ushers/Lobby Attend/Ticket Takers	Short-term on-the-job training	15,010	6.20 - 8.12
39-3091	Amusement/Recreation Attendants	Short-term on-the-job training	16,090	6.41 - 8.48
39-3092	Costume Attendants	Short-term on-the-job training	19,220	7.34 - 10.67
39-3093	Lockr Rm/Coatrm/Dress Rm Attend	Short-term on-the-job training	16,930	6.88 - 9.17
39-3199	Gaming Wrkrs, AO	Moderate-term on-the-job training	NA	NA
39-4000	Funeral Service Wrkrs		NA	NA
39-4011	Embalmers	Postsecondary vocational training	46,170	17.46 - 26.48
39-4021	Funeral Attendants	Short-term on-the-job training	22,690	8.74 - 13.11
39-5000	Personal Appearance Wrkrs		NA	NA
39-5011	Barbers	Postsecondary vocational training	21,030	7.66 - 11.85
39-5012	Hairdress/Hairstyl/Cosmetologists	Postsecondary vocational training	22,340	7.81 - 12.87
39-5092	Manicurists/Pedicurists	Postsecondary vocational training	20,660	6.90 - 11.96
39-5093	Shampooers	Short-term on-the-job training	14,870	6.09 - 8.34
39-5094	Skin Care Specialists	Postsecondary vocational training	29,990	9.67 - 18.44
39-6000	Transportation/Tourism/Lodging Atts		NA	NA
39-6011	Baggage Porters and Bellhops	Short-term on-the-job training	19,550	6.68 - 10.54
39-6012	Concierges	Moderate-term on-the-job training	21,380	8.18 - 11.03
39-6021	Tour Guides and Escorts	Moderate-term on-the-job training	18,080	6.72 - 10.43
39-6022	Travel Guides	Moderate-term on-the-job training	31,020	11.00 - 16.06
39-6031	Flight Attendants	Long-term on-the-job training	60,570	NA
39-6032	Trans Atts/Ex Flight Atts/Bag Porters	Short-term on-the-job training	15,820	6.17 - 9.14
39-9000	Other Personal Care/Service Wrkrs		NA	NA
39-9011	Child Care Wrkrs	Short-term on-the-job training	17,250	6.91 - 9.33
39-9021	Personal and Home Care Aides	Short-term on-the-job training	18,840	8.03 - 10.21
39-9031	Fitness Trainers/Aerobics Instruct	Postsecondary vocational training	21,930	7.48 - 12.27
39-9032	Recreation Wrkrs	Bachelor's degree	20,360	7.15 - 10.89
39-9041	Residential Advisors	Moderate-term on-the-job training	21,890	8.52 - 12.02
39-9099	Personal Care/Service Wrkrs/AO	Short-term on-the-job training	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
<b>41-0000</b>	<b>Sales and Related Occupations</b>	<b>289,900</b>	<b>322,520</b>	<b>32,620</b>	<b>11.3%</b>	<b>3,260</b>	<b>9,510</b>	<b>12,770</b>
41-1000	First-Line Suprvsrs/Mngrs, Sales Wrks	39,930	43,200	3,270	8.2%	330	730	1,060
41-1011	F-L Sups/Mgrs of Rtl Sls Wrks	31,340	33,890	2,550	8.1%	260	560	820
41-1012	F-L Sups/Mgrs of nonRtl Sls Wrks	8,590	9,310	720	8.4%	70	160	230
41-2000	Retail Sales Wrks	164,860	184,370	19,510	11.8%	1,950	6,810	8,760
41-2011	Cashiers	67,550	75,270	7,720	11.4%	770	3,290	4,060
41-2012	Gaming Change/Booth Cashiers	1,270	1,340	70	5.5%	10	60	70
41-2021	Counter and Rental Clerks	6,890	8,630	1,740	25.3%	170	260	430
41-2022	Parts Salespersons	4,960	4,800	(160)	-3.2%	0	140	140
41-2031	Retail Salespersons	84,190	94,330	10,140	12.0%	1,010	3,060	4,070
41-3000	Sales Representatives, Services	16,460	17,920	1,460	8.9%	150	330	480
41-3011	Advertising Sales Agents	3,200	3,380	180	5.6%	20	60	80
41-3021	Insurance Sales Agents	7,660	8,720	1,060	13.8%	110	180	290
41-3031	Sec/Comm/Fin Serv Sales Agents	3,650	4,300	650	17.8%	60	40	100
41-3041	Travel Agents	1,950	1,530	(420)	-21.5%	0	40	40
41-4000	Sales Reps, Wholesale and Manufacturing	41,140	49,160	8,020	19.5%	800	1,080	1,880
41-4011	Sls Reps/Whls/Mfg/Tech/Sci Prods	7,430	8,890	1,460	19.7%	150	200	350
41-4012	Sls Reps/Whls/Mfg/Ex Tech/Sci Prod	33,720	40,280	6,560	19.5%	660	890	1,550
41-9000	Other Sales and Related Wrks	27,500	27,870	370	1.3%	40	560	600
41-9011	Demonstrators/Product Promoters	2,310	2,690	380	16.5%	40	50	90
41-9012	Models	20	10	(10)	-50.0%	0	0	0
41-9021	Real Estate Brokers	2,280	2,290	10	0.4%	0	50	50
41-9022	Real Estate Sales Agents	2,760	2,920	160	5.8%	20	60	80
41-9031	Sales Engineers	1,540	1,760	220	14.3%	20	50	70
41-9041	Telemarketers	6,180	5,550	(630)	-10.2%	0	100	100
41-9091	Door Sales/News/St Vndrs/Rel Wrks	5,260	4,000	(1,260)	-24.0%	0	120	120
41-9099	Sales/Related Wrks/All Other	7,150	8,650	1,500	21.0%	150	140	290
<b>43-0000</b>	<b>Office/Administrative Support</b>	<b>477,830</b>	<b>507,040</b>	<b>29,210</b>	<b>6.1%</b>	<b>2,920</b>	<b>10,970</b>	<b>13,890</b>
43-1011	F-L Sups/Mgrs Offc/Admin Supp Wrk	28,170	29,660	1,490	5.3%	150	600	750
43-2000	Communications Equipment Oprs	5,510	5,070	(440)	-8.0%	0	140	140
43-2011	Switchboard Oprs/Incl Answrng Srvc	4,760	4,740	(20)	-0.4%	0	120	120
43-2021	Telephone Oprs	660	260	(400)	-60.6%	0	20	20
43-2099	Communications Equipment Oprs/AO	80	60	(20)	-25.0%	0	0	0
43-3000	Financial Clerks	80,350	85,400	5,050	6.3%	510	1,950	2,460
43-3011	Bill/Account Collectors	5,140	6,410	1,270	24.7%	130	100	230
43-3021	Billing/Posting Clerks/Machn Oprs	10,600	11,370	770	7.3%	80	180	260
43-3031	Bookkeep/Account/Auditing Clerks	44,400	45,380	980	2.2%	100	830	930
43-3041	Gaming Cage Wrks	540	560	20	3.7%	0	30	30
43-3051	Payroll and Timekeeping Clerks	4,630	4,840	210	4.5%	20	120	140
43-3061	Procurement Clerks	1,890	1,830	(60)	-3.2%	0	50	50
43-3071	Tellers	13,160	15,010	1,850	14.1%	190	650	840

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
<b>41-0000</b>	<b>Sales and Related Occupations</b>		<b>30,160</b>	<b>7.56 - 16.97</b>
41-1000	First-Line Suprvsrs/Mngrs, Sales Wrks		NA	NA
41-1011	F-L Sups/Mgrs of Rtl Sls Wrks	Work experience in related occ	36,190	11.49 - 20.38
41-1012	F-L Sups/Mgrs of nonRtl Sls Wrks	Work experience in related occ	70,020	19.86 - 40.64
41-2000	Retail Sales Wrks		NA	NA
41-2011	Cashiers	Short-term on-the-job training	16,380	6.65 - 8.74
41-2012	Gaming Change/Booth Cashiers	Short-term on-the-job training	21,190	7.91 - 12.69
41-2021	Counter and Rental Clerks	Short-term on-the-job training	19,270	6.62 - 10.30
41-2022	Parts Salespersons	Moderate-term on-the-job training	27,550	9.74 - 16.02
41-2031	Retail Salespersons	Short-term on-the-job training	21,430	7.23 - 11.15
41-3000	Sales Representatives, Services		NA	NA
41-3011	Advertising Sales Agents	Moderate-term on-the-job training	42,370	12.47 - 26.34
41-3021	Insurance Sales Agents	Bachelor's degree	51,230	13.48 - 30.58
41-3031	Sec/Comm/Fin Serv Sales Agents	Bachelor's degree	80,350	16.86 - 54.84
41-3041	Travel Agents	Postsecondary vocational training	27,670	10.54 - 15.09
41-4000	Sales Reps, Wholesale and Manufacturing		NA	NA
41-4011	Sls Reps/Whls/Mfg/Tech/Sci Prods	Moderate-term on-the-job training	62,900	19.36 - 37.15
41-4012	Sls Reps/Whls/Mfg/Ex Tech/Sci Prod	Moderate-term on-the-job training	53,330	16.14 - 31.72
41-9000	Other Sales and Related Wrks		NA	NA
41-9011	Demonstrators/Product Promoters	Moderate-term on-the-job training	25,340	7.89 - 13.84
41-9012	Models	Moderate-term on-the-job training	NA	NA
41-9021	Real Estate Brokers	Postsecondary vocational training	62,650	14.33 - 42.21
41-9022	Real Estate Sales Agents	Postsecondary vocational training	50,940	14.17 - 32.48
41-9031	Sales Engineers	Bachelor's degree	69,570	24.52 - 38.25
41-9041	Telemarketers	Short-term on-the-job training	23,150	8.55 - 13.07
41-9091	Door Sales/News/St Vndrs/Rel Wrks	Short-term on-the-job training	17,550	6.05 - 8.12
41-9099	Sales/Related Wrks/All Other	Moderate-term on-the-job training	NA	NA
<b>43-0000</b>	<b>Office/Administrative Support</b>		<b>27,270</b>	<b>9.69 - 15.55</b>
43-1011	F-L Sups/Mgrs Offc/Admin Supp Wrk	Work experience in related occ	43,680	14.99 - 25.28
43-2000	Communications Equipment Oprs		NA	NA
43-2011	Switchboard Oprs/Incl Answrng Svc	Short-term on-the-job training	21,500	8.64 - 11.73
43-2021	Telephone Oprs	Short-term on-the-job training	28,420	10.04 - 16.92
43-2099	Communications Equipment Oprs/AO	Short-term on-the-job training	NA	NA
43-3000	Financial Clerks		NA	NA
43-3011	Bill/Account Collectors	Short-term on-the-job training	27,450	10.84 - 15.21
43-3021	Billing/Posting Clerks/Machn Oprs	Moderate-term on-the-job training	26,800	10.51 - 14.31
43-3031	Bookkeep/Account/Auditing Clerks	Moderate-term on-the-job training	27,330	10.36 - 15.56
43-3041	Gaming Cage Wrks	Short-term on-the-job training	23,390	9.68 - 12.96
43-3051	Payroll and Timekeeping Clerks	Moderate-term on-the-job training	29,070	11.60 - 16.38
43-3061	Procurement Clerks	Short-term on-the-job training	28,630	11.34 - 15.55
43-3071	Tellers	Short-term on-the-job training	20,120	8.31 - 10.78

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
43-4000	Information and Record Clerks	112,080	130,830	18,750	16.7%	1,880	2,410	4,290
43-4011	Brokerage Clerks	1,100	980	(120)	-10.9%	0	20	20
43-4021	Correspondence Clerks	250	240	(10)	-4.0%	0	10	10
43-4031	Court/Municipal/License Clerks	2,220	2,380	160	7.2%	20	50	70
43-4041	Credit Authorizers/Checkers/Clerks	910	850	(60)	-6.6%	0	20	20
43-4051	Customer Service Reps	39,250	47,400	8,150	20.8%	820	580	1,400
43-4061	Eligibility Interviewers/Gov't Progrms	1,420	1,210	(210)	-14.8%	0	40	40
43-4071	File Clerks	4,960	4,810	(150)	-3.0%	0	150	150
43-4081	Hotel/Motel/Resort Desk Clerks	4,280	5,170	890	20.8%	90	190	280
43-4111	Interviewers/Ex Eligibility/Loan	2,940	3,880	940	32.0%	90	80	170
43-4121	Library Assts/Clerical	3,020	3,480	460	15.2%	50	120	170
43-4131	Loan Interviewers/Clerks	3,220	2,780	(440)	-13.7%	0	40	40
43-4141	New Accounts Clerks	2,170	2,480	310	14.3%	30	60	90
43-4151	Order Clerks	12,230	13,190	960	7.8%	100	280	380
43-4161	Human Res Assts/Ex Pay/Tmkpng	3,780	4,540	760	20.1%	80	80	160
43-4171	Receptionists/Info Clerks	24,390	31,160	6,770	27.8%	680	600	1,280
43-4181	Res/Trans Ticket Agnts/Travl Clerks	1,610	1,730	120	7.5%	10	40	50
43-4999 <sup>(7)</sup>	Fin/Info/Record Clerks/All Other	4,340	4,540	200	4.6%	20	70	90
43-5000	Material Record/Schedul/Disp/Dist Wrks	81,330	82,500	1,170	1.4%	120	2,360	2,480
43-5011	Cargo/Freight Agents	840	980	140	16.7%	10	20	30
43-5021	Couriers/Messengers	2,260	2,200	(60)	-2.7%	0	50	50
43-5031	Police/Fire/Ambulance Dispatchers	1,360	1,440	80	5.9%	10	30	40
43-5032	Disp/Ex Police/Fire/Ambulance	3,170	3,660	490	15.5%	50	70	120
43-5041	Meter Readers/Utilities	1,010	820	(190)	-18.8%	0	30	30
43-5051	Postal Service Clerks	1,300	1,290	(10)	-0.8%	0	30	30
43-5052	Postal Service Mail Carriers	7,040	7,010	(30)	-0.4%	0	220	220
43-5053	PS Mail Sort/Proc/Proc Machn Oprs	4,620	4,150	(470)	-10.2%	0	120	120
43-5061	Production/Plan/Expediting Clerks	7,640	8,810	1,170	15.3%	120	190	310
43-5071	Shipping/Receiving/Traffic Clerks	18,580	19,430	850	4.6%	90	380	470
43-5081	Stock Clerks/Order Fillers	31,090	29,880	(1,210)	-3.9%	0	1,150	1,150
43-5111	Weigh/Meas/Check/Sample/Rcrdkp	2,200	2,600	400	18.2%	40	60	100
43-5199 <sup>(7)</sup>	Matrl Rec/Sched/Disp/Dist Wrks/AO	230	250	20	8.7%	0	10	10
43-6000	Secretaries/Administrative Assistants	85,250	86,240	990	1.2%	100	1,630	1,730
43-6011	Executive Secretaries/Admin Assts	32,680	34,830	2,150	6.6%	220	630	850
43-6012	Legal Secretaries	3,870	4,630	760	19.6%	80	70	150
43-6013	Medical Secretaries	4,830	5,690	860	17.8%	90	90	180
43-6014	Secretaries/Ex Legal/Medical/Exec	43,870	41,100	(2,770)	-6.3%	0	840	840
43-9000	Other Office/Administrative Support Wrks	85,150	87,330	2,180	2.6%	220	1,870	2,090
43-9011	Computer Oprs	3,370	2,770	(600)	-17.8%	0	70	70
43-9021	Data Entry Keyers	6,830	6,520	(310)	-4.5%	0	160	160
43-9022	Word Processors/Typists	4,020	2,320	(1,700)	-42.3%	0	90	90
43-9031	Desktop Publishers	1,060	1,310	250	23.6%	30	20	50

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
43-4000	Information and Record Clerks		NA	NA
43-4011	Brokerage Clerks	Moderate-term on-the-job training	29,590	11.10 - 17.15
43-4021	Correspondence Clerks	Short-term on-the-job training	27,790	10.93 - 15.27
43-4031	Court/Municipal/License Clerks	Short-term on-the-job training	25,080	9.17 - 15.08
43-4041	Credit Authorizers/Checkers/Clerks	Short-term on-the-job training	28,140	10.23 - 15.97
43-4051	Customer Service Reps	Moderate-term on-the-job training	28,830	10.40 - 16.27
43-4061	Eligibility Interviewers/Gov't Progrms	Moderate-term on-the-job training	33,080	12.96 - 18.02
43-4071	File Clerks	Short-term on-the-job training	21,540	8.55 - 11.70
43-4081	Hotel/Motel/Resort Desk Clerks	Short-term on-the-job training	17,650	7.56 - 9.22
43-4111	Interviewers/Ex Eligibility/Loan	Short-term on-the-job training	24,070	9.57 - 13.23
43-4121	Library Assts/Clerical	Short-term on-the-job training	20,320	7.90 - 11.45
43-4131	Loan Interviewers/Clerks	Short-term on-the-job training	27,000	10.62 - 15.27
43-4141	New Accounts Clerks	Work experience in related occ	25,190	10.39 - 13.72
43-4151	Order Clerks	Short-term on-the-job training	23,790	9.16 - 13.24
43-4161	Human Res Assts/Ex Pay/Tmkpng	Short-term on-the-job training	32,560	12.52 - 17.79
43-4171	Receptionists/Info Clerks	Short-term on-the-job training	21,840	8.77 - 12.16
43-4181	Res/Trans Ticket Agnts/Travl Clerks	Short-term on-the-job training	26,520	8.99 - 15.34
43-4999 <sup>(7)</sup>	Fin/Info/Record Clerks/All Other	Short-term on-the-job training	NA	NA
43-5000	Material Record/Schedul/Disp/Dist Wrks		NA	NA
43-5011	Cargo/Freight Agents	Moderate-term on-the-job training	33,980	10.67 - 20.11
43-5021	Couriers/Messengers	Short-term on-the-job training	21,210	7.94 - 11.55
43-5031	Police/Fire/Ambulance Dispatchers	Moderate-term on-the-job training	31,990	13.56 - 17.25
43-5032	Disp/Ex Police/Fire/Ambulance	Moderate-term on-the-job training	33,500	12.50 - 18.97
43-5041	Meter Readers/Utilities	Short-term on-the-job training	30,980	10.75 - 19.54
43-5051	Postal Service Clerks	Short-term on-the-job training	39,270	17.98 - 20.35
43-5052	Postal Service Mail Carriers	Short-term on-the-job training	38,870	16.79 - 20.81
43-5053	PS Mail Sort/Proc/Proc Machn Oprs	Short-term on-the-job training	36,870	17.38 - 20.14
43-5061	Production/Plan/Expediting Clerks	Short-term on-the-job training	36,310	13.35 - 20.65
43-5071	Shipping/Receiving/Traffic Clerks	Short-term on-the-job training	25,940	10.00 - 14.37
43-5081	Stock Clerks/Order Fillers	Short-term on-the-job training	20,820	7.51 - 11.78
43-5111	Weigh/Meas/Check/Sample/Rcrdkp	Short-term on-the-job training	29,510	9.97 - 17.06
43-5199 <sup>(7)</sup>	Matrl Rec/Sched/Disp/Dist Wrks/AO	Short-term on-the-job training	NA	NA
43-6000	Secretaries/Administrative Assistants		NA	NA
43-6011	Executive Secretaries/Admin Assts	Moderate-term on-the-job training	31,750	12.04 - 17.76
43-6012	Legal Secretaries	Postsecondary vocational training	33,280	12.72 - 19.19
43-6013	Medical Secretaries	Postsecondary vocational training	26,140	10.53 - 14.16
43-6014	Secretaries/Ex Legal/Medical/Exec	Moderate-term on-the-job training	25,520	10.02 - 14.24
43-9000	Other Office/Administrative Support Wrks		NA	NA
43-9011	Computer Oprs	Moderate-term on-the-job training	30,470	10.75 - 17.64
43-9021	Data Entry Keyers	Moderate-term on-the-job training	22,770	9.04 - 12.36
43-9022	Word Processors/Typists	Moderate-term on-the-job training	26,710	10.78 - 14.73
43-9031	Desktop Publishers	Postsecondary vocational training	31,810	11.12 - 18.26

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
43-9041	Ins Claims/Policy Processng Clerks	7,600	8,030	430	5.7%	40	120	160
43-9051	Mail Clerks/Mail Machn Oprs/Ex Postal	3,340	3,190	(150)	-4.5%	0	100	100
43-9061	Office Clerks/General	50,670	55,280	4,610	9.1%	460	1,120	1,580
43-9071	Office Machn Oprs/Ex Computer	1,610	1,540	(70)	-4.3%	0	40	40
43-9081	Proofreaders/Copy Markers	500	440	(60)	-12.0%	0	10	10
43-9111	Statistical Assts	210	200	(10)	-4.8%	0	0	0
43-9999 <sup>(7)</sup>	Sec/Admn Asst/Othr Offc Sup Wrks/AO	5,930	5,740	(190)	-3.2%	0	130	130
<b>45-0000</b>	<b>Farming/Fishing/Forestry Occs</b>	<b>3,750</b>	<b>3,990</b>	<b>240</b>	<b>6.4%</b>	<b>20</b>	<b>90</b>	<b>110</b>
45-1000	First-Line Sups/Mgrs Farm/Fish/Forest Wrks	400	440	40	10.0%	0	10	10
45-1011	F-L Sups/Mgrs Farm/Fish/Forest Wrks	380	420	40	10.5%	0	10	10
45-1012	Farm Labor Contractors	20	30	10	50.0%	0	0	0
45-2000	Agricultural Wrks	1,840	2,030	190	10.3%	20	50	70
45-2011	Agricultural Inspectors	260	270	10	3.8%	0	10	10
45-2021	Animal Breeders	50	50	0	0.0%	0	0	0
45-2041	Graders/Sorters/Ag Prod	390	430	40	10.3%	0	10	10
45-2091	Ag Equipment Oprs	260	290	30	11.5%	0	10	10
45-2092	Farm/Labrs/Crop/Nursry/Greenhs	380	440	60	15.8%	10	10	20
45-2093	Farmwrks/Farm/Ranch Animals	500	560	60	12.0%	10	10	20
45-4000	Forest/Conservation/Logging Wrks	1,080	1,040	(40)	-3.7%	0	20	20
45-4011	Forest and Conservation Wrks	220	220	0	0.0%	0	10	10
45-4021	Fallers	60	60	0	0.0%	0	0	0
45-4022	Logging Equipment Oprs	430	420	(10)	-2.3%	0	10	10
45-4023	Log Graders/Scalers	370	340	(30)	-8.1%	0	10	10
45-9099 <sup>(7)</sup>	Farming/Fishing/Forestry Wrks/AO	430	480	50	11.6%	10	10	20
<b>47-0000</b>	<b>Construction/Extraction Occupations</b>	<b>142,210</b>	<b>168,240</b>	<b>26,030</b>	<b>18.3%</b>	<b>2,600</b>	<b>2,740</b>	<b>5,340</b>
47-1011	F-L Sup/Mgr Const Trades/Extract Wrks	10,500	12,560	2,060	19.6%	210	180	390
47-2000	Construction Trades Wrks	116,060	137,960	21,900	18.9%	2,190	2,150	4,340
47-2011	Boilermakers	370	390	20	5.4%	0	10	10
47-2021	Brickmasons/Blockmasons	4,210	4,910	700	16.6%	70	60	130
47-2022	Stonemasons	220	260	40	18.2%	0	0	0
47-2031	Carpenters	31,700	36,650	4,950	15.6%	500	520	1,020
47-2041	Carpet Installers	2,250	2,700	450	20.0%	50	40	90
47-2042	Floor Lays/Ex Carpet/Wood/Tiles	1,130	1,300	170	15.0%	20	20	40
47-2043	Floor Sanders/Finishers	360	390	30	8.3%	0	10	10
47-2044	Tile/Marble Settrs	450	580	130	28.9%	10	10	20
47-2051	Cem Masons/Conc Finishrs	3,720	4,870	1,150	30.9%	120	80	200
47-2053	Terrazzo Wrks/Finish	90	100	10	11.1%	0	0	0
47-2061	Construction Laborers	14,020	16,470	2,450	17.5%	250	190	440
47-2071	Pavng/Surfacng/Tampng Equip Oprs	1,160	1,330	170	14.7%	20	20	40
47-2072	Pile-Driver Oprs	50	60	10	20.0%	0	0	0

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
43-9041	Ins Claims/Policy Processng Clerks	Moderate-term on-the-job training	26,370	10.42 - 14.41
43-9051	Mail Clerks/Mail Machn Oprs/Ex Postal	Short-term on-the-job training	22,350	9.10 - 12.19
43-9061	Office Clerks/General	Short-term on-the-job training	23,310	8.75 - 13.17
43-9071	Office Machn Oprs/Ex Computer	Short-term on-the-job training	23,220	9.04 - 12.96
43-9081	Proofreaders/Copy Markers	Short-term on-the-job training	24,160	8.57 - 13.48
43-9111	Statistical Assts	Moderate-term on-the-job training	30,540	12.28 - 16.71
43-9999 <sup>(7)</sup>	Sec/Admn Asst/Othr Offc Sup Wrkrs/AO	Short-term on-the-job training	NA	NA
<b>45-0000</b>	<b>Farming/Fishing/Forestry Occs</b>		<b>25,510</b>	<b>8.88 - 14.41</b>
45-1000	First-Line Sups/Mgrs Farm/Fish/Forest Wrks		NA	NA
45-1011	F-L Sups/Mgrs Farm/Fish/Forest Wrks	Work experience in related occ	37,960	13.41 - 21.70
45-1012	Farm Labor Contractors	Work experience in related occ	NA	NA
45-2000	Agricultural Wrkrs		NA	NA
45-2011	Agricultural Inspectors	Work experience in related occ	36,540	14.75 - 20.35
45-2021	Animal Breeders	Moderate-term on-the-job training	30,690	11.61 - 16.13
45-2041	Graders/Sorters/Ag Prod	Work experience in related occ	19,460	7.41 - 10.74
45-2091	Ag Equipment Oprs	Moderate-term on-the-job training	25,450	10.04 - 13.94
45-2092	Farm/Labrsrs/Crop/Nursry/Greenhs	Short-term on-the-job training	18,360	7.07 - 10.22
45-2093	Farmwrkrs/Farm/Ranch Animals	Short-term on-the-job training	22,820	8.91 - 12.85
45-4000	Forest/Conservation/Logging Wrkrs		NA	NA
45-4011	Forest and Conservation Wrkrs	Moderate-term on-the-job training	29,060	10.79 - 17.00
45-4021	Fallers	Moderate-term on-the-job training	23,280	9.54 - 12.63
45-4022	Logging Equipment Oprs	Moderate-term on-the-job training	27,380	11.48 - 13.87
45-4023	Log Graders/Scalers	Moderate-term on-the-job training	24,340	8.18 - 15.12
45-9099 <sup>(7)</sup>	Farming/Fishing/Forestry Wrkrs/AO	Moderate-term on-the-job training	NA	NA
<b>47-0000</b>	<b>Construction/Extraction Occupations</b>		<b>40,080</b>	<b>13.83 - 24.46</b>
47-1011	F-L Sup/Mgr Const Trades/Extract Wrks	Work experience in related occ	57,620	20.98 - 32.24
47-2000	Construction Trades Wrkrs		NA	NA
47-2011	Boilermakers	Long-term on-the-job training	44,050	17.18 - 25.40
47-2021	Brickmasons/Blockmasons	Long-term on-the-job training	47,380	18.96 - 27.17
47-2022	Stonemasons	Long-term on-the-job training	38,450	12.77 - 23.29
47-2031	Carpenters	Long-term on-the-job training	37,490	13.34 - 23.37
47-2041	Carpet Installers	Moderate-term on-the-job training	36,430	11.91 - 23.65
47-2042	Floor Laysr/Ex Carpet/Wood/Tiles	Moderate-term on-the-job training	37,880	14.38 - 21.60
47-2043	Floor Sanders/Finishers	Moderate-term on-the-job training	28,880	11.13 - 16.54
47-2044	Tile/Marble Settrs	Long-term on-the-job training	40,150	14.53 - 24.44
47-2051	Cem Masons/Conc Finishrs	Moderate-term on-the-job training	40,290	14.77 - 23.82
47-2053	Terrazzo Wrks/Finish	Long-term on-the-job training	35,930	12.58 - 24.15
47-2061	Construction Laborers	Moderate-term on-the-job training	34,340	12.31 - 20.77
47-2071	Pavng/Surfacng/Tampng Equip Oprs	Moderate-term on-the-job training	38,290	15.17 - 21.38
47-2072	Pile-Driver Oprs	Moderate-term on-the-job training	NA	NA

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
47-2073	Opng Engrs/Other Con Eqp Oprs	6,450	7,370	920	14.3%	90	170	260
47-2081	Drywall and Ceiling Tile Installers	2,120	2,660	540	25.5%	50	50	100
47-2082	Tapers	740	930	190	25.7%	20	20	40
47-2111	Electricians	14,190	17,740	3,550	25.0%	360	280	640
47-2121	Glaziers	870	1,020	150	17.2%	20	20	40
47-2130	Insulation Wrks	1,260	1,500	240	19.0%	20	40	60
47-2141	Painters/Const/Maint	7,490	8,500	1,010	13.5%	100	110	210
47-2142	Paperhangers	230	250	20	8.7%	0	0	0
47-2151	Pipelayers	620	710	90	14.5%	10	10	20
47-2152	Plumbers/Pipefitters/Steamfitters	10,990	13,420	2,430	22.1%	240	250	490
47-2161	Plasterers/Stucco Masons	690	800	110	15.9%	10	10	20
47-2171	Reinforcing Iron/Rebar Wrks	120	140	20	16.7%	0	0	0
47-2181	Roofers	3,680	4,470	790	21.5%	80	90	170
47-2211	Sheet Metal Wrks	5,560	6,840	1,280	23.0%	130	130	260
47-2221	Structural Iron and Steel Wrks	1,340	1,600	260	19.4%	30	30	60
47-3000	Helpers, Construction Trades	5,340	6,230	890	16.7%	90	220	310
47-3011	Helprs-Brick/Block/Stone/Tile/Marble	1,140	1,210	70	6.1%	10	50	60
47-3012	Helpers--Carpenters	1,260	1,510	250	19.8%	30	50	80
47-3013	Helpers--Electricians	850	1,030	180	21.2%	20	40	60
47-3014	Helprs--Paint/Paper/Plaster/Stucco	330	400	70	21.2%	10	10	20
47-3015	Helprs--Pipelay/Plumb/Pipe/Steam	1,200	1,380	180	15.0%	20	50	70
47-3016	Helpers--Roofers	210	260	50	23.8%	10	10	20
47-3019	Helpers/Const Trades/All Other	350	440	90	25.7%	10	10	20
47-4000	Other Construction & Related Wrks	8,590	9,530	940	10.9%	90	160	250
47-4011	Const/Bldg Inspectors	1,060	1,180	120	11.3%	10	20	30
47-4021	Elevator Installers and Repairers	130	150	20	15.4%	0	0	0
47-4031	Fence Erectors	520	610	90	17.3%	10	10	20
47-4041	Hazardous Materials Removal Wrks	880	1,240	360	40.9%	40	20	60
47-4051	Highway Maintenance Wrks	4,750	5,010	260	5.5%	30	70	100
47-4061	Rail-Track Layng/Maint Eqpmnt Oprs	440	380	(60)	-13.6%	0	10	10
47-4071	Septic Tnk Srvcs/Sewer Pipe Clnrs	800	940	140	17.5%	10	20	30
47-4091	Segmental Pavers	10	10	0	0.0%	0	0	0
47-4999 <sup>(7)</sup>	Const Trades/Rel Wrks/AO	660	740	80	12.1%	10	10	20
47-5000	Extraction Wrks	1,070	1,230	160	15.0%	20	30	50
47-5013	Service Unit Oprs, Oil/Gas/Mining	10	10	0	0.0%	0	0	0
47-5021	Earth Drillers/Ex Oil/Gas	770	900	130	16.9%	10	20	30
47-5031	Explsv/Ordnc Handling Exprts/Blastrs	70	70	0	0.0%	0	0	0
47-5040 <sup>(8)</sup>	Mining Machine Oprs	60	70	10	16.7%	0	0	0
47-5041 <sup>(8)</sup>	Cont Mining Mach Opr	(8)	(8)	(8)	(8)	(8)	(8)	(8)
47-5042 <sup>(8)</sup>	Mine Cut/Channel Mach Opr	(8)	(8)	(8)	(8)	(8)	(8)	(8)

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
47-2073	Opng Engrs/Other Con Eqp Oprs	Moderate-term on-the-job training	44,610	16.92 - 25.89
47-2081	Drywall and Ceiling Tile Installers	Moderate-term on-the-job training	41,880	14.56 - 25.93
47-2082	Tapers	Moderate-term on-the-job training	45,700	18.64 - 26.21
47-2111	Electricians	Long-term on-the-job training	43,850	16.49 - 26.06
47-2121	Glaziers	Long-term on-the-job training	38,140	13.13 - 24.58
47-2130	Insulation Wrks	Moderate-term on-the-job training	37,570	12.31 - 23.89
47-2141	Painters/Const/Maint	Moderate-term on-the-job training	34,560	12.74 - 19.91
47-2142	Paperhangers	Moderate-term on-the-job training	37,090	10.89 - 22.34
47-2151	Pipelayers	Moderate-term on-the-job training	41,960	16.48 - 24.16
47-2152	Plumbers/Pipefitters/Steamfitters	Long-term on-the-job training	45,720	15.54 - 27.97
47-2161	Plasterers/Stucco Masons	Long-term on-the-job training	40,860	13.87 - 25.36
47-2171	Reinforcing Iron/Rebar Wrks	Long-term on-the-job training	48,410	17.33 - 27.97
47-2181	Roofers	Moderate-term on-the-job training	32,800	12.01 - 18.82
47-2211	Sheet Metal Wrks	Moderate-term on-the-job training	39,090	13.50 - 24.06
47-2221	Structural Iron and Steel Wrks	Long-term on-the-job training	46,930	15.89 - 28.52
47-3000	Helpers, Construction Trades		NA	NA
47-3011	Helprs-Brick/Block/Stone/Tile/Marble	Short-term on-the-job training	29,410	11.23 - 16.67
47-3012	Helpers--Carpenters	Short-term on-the-job training	25,170	9.64 - 14.18
47-3013	Helpers--Electricians	Short-term on-the-job training	23,820	9.25 - 12.83
47-3014	Helprs--Paint/Paper/Plaster/Stucco	Short-term on-the-job training	25,680	10.44 - 13.85
47-3015	Helprs--Pipelay/Plumb/Pipe/Steam	Short-term on-the-job training	20,570	7.98 - 10.54
47-3016	Helpers--Roofers	Short-term on-the-job training	22,760	9.59 - 12.41
47-3019	Helpers/Const Trades/All Other	Short-term on-the-job training	NA	NA
47-4000	Other Construction & Related Wrks		NA	NA
47-4011	Const/Bldg Inspectors	Work experience in related occ	44,670	17.65 - 25.88
47-4021	Elevator Installers and Repairers	Long-term on-the-job training	53,080	20.12 - 31.78
47-4031	Fence Erectors	Moderate-term on-the-job training	37,580	15.55 - 21.51
47-4041	Hazardous Materials Removal Wrks	Moderate-term on-the-job training	43,530	15.73 - 25.89
47-4051	Highway Maintenance Wrks	Moderate-term on-the-job training	31,750	12.16 - 17.59
47-4061	Rail-Track Layng/Maint Eqpmnt Oprs	Moderate-term on-the-job training	NA	NA
47-4071	Septic Tnk Srvcs/Sewer Pipe Clnrs	Moderate-term on-the-job training	31,970	13.43 - 17.42
47-4091	Segmental Pavers	Moderate-term on-the-job training	NA	NA
47-4999 <sup>(7)</sup>	Const Trades/Rel Wrks/AO	Moderate-term on-the-job training	NA	NA
47-5000	Extraction Wrks		NA	NA
47-5013	Service Unit Oprs, Oil/Gas/Mining	Moderate-term on-the-job training	NA	NA
47-5021	Earth Drillers/Ex Oil/Gas	Moderate-term on-the-job training	39,100	15.68 - 22.52
47-5031	Explsv/Ordnc Handling Exprts/Blastrs	Moderate-term on-the-job training	42,360	17.56 - 23.42
47-5040 <sup>(8)</sup>	Mining Machine Oprs		NA	NA
47-5041 <sup>(8)</sup>	Cont Mining Mach Opr	Moderate-term on-the-job training	30,670	12.35 - 16.67
47-5042 <sup>(8)</sup>	Mine Cut/Channel Mach Opr	Moderate-term on-the-job training	NA	NA

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replace-ments <sup>(2)</sup>	Total <sup>(3)</sup>
47-5051	Rock Splitters, Quarry	50	50	0	0.0%	0	0	0
47-5071 <sup>(6)</sup>	Roustabouts, Oil/Gas	(8)	(8)	(8)	(8)	(8)	(8)	(8)
47-5081	Helpers--Extraction Wrkrs	80	90	10	12.5%	0	0	0
47-5099 <sup>(6)</sup>	Extraction Wrkrs/All Other	40	30	(10)	-25.0%	0	0	0
<b>49-0000</b>	<b>Installation/Maint/Repair Occupations</b>	<b>112,040</b>	<b>125,810</b>	<b>13,770</b>	<b>12.3%</b>	<b>1,380</b>	<b>2,570</b>	<b>3,950</b>
49-1011	First-Line Sup/Mgrs Mechs/Inst/Rep	8,960	10,180	1,220	13.6%	120	220	340
49-2000	Elect Equip Mechncs/Instllrs/Repairrs	9,890	10,640	750	7.6%	80	190	270
49-2011	Computer/ATM/Offc Machn Reprrs	2,410	2,840	430	17.8%	40	30	70
49-2021	Radio Mechanics	40	30	(10)	-25.0%	0	0	0
49-2022	Telecm Eqp Inst/Reprrs/Ex Line Inst	3,220	3,150	(70)	-2.2%	0	70	70
49-2091	Avionics Techs	190	190	0	0.0%	0	10	10
49-2092	Elec Motor/Power Tool/Rel. Reprrs	820	830	10	1.2%	0	20	20
49-2093	Elec Installers/Repairers/Trans Eqp	120	130	10	8.3%	0	0	0
49-2094	Elec Repairers/Comm/Ind Equip	1,290	1,470	180	14.0%	20	30	50
49-2095	Elec Reprrs/Powerhse/Substn/Relay	510	500	(10)	-2.0%	0	10	10
49-2096	Elec Equip Instllrs/Reprrs/Motor Veh	150	170	20	13.3%	0	0	0
49-2097	Elec Home Ent Eqpmnt Inst/Reprrs	600	660	60	10.0%	10	10	20
49-2098	Security/Fire Alarm Systems Inst	460	560	100	21.7%	10	10	20
49-2099 <sup>(7)</sup>	Elec Equip Mechs/Instllrs/Reprrs/AO	100	120	20	20.0%	0	0	0
49-3000	Vehicle/Mobile Eqp Mechncs/Instllrs	37,010	41,110	4,100	11.1%	410	950	1,360
49-3011	Aircraft Mechanics/Service Techs	1,410	1,530	120	8.5%	10	30	40
49-3021	Automotive Body/Related Repairers	4,560	5,160	600	13.2%	60	90	150
49-3022	Automotive Glass Installers/Reprrs	100	110	10	10.0%	0	0	0
49-3023	Automotive Service Techs/Mechanics	17,230	18,840	1,610	9.3%	160	460	620
49-3031	Bus/Truck Mechs/Diesel Engrn Spec	5,770	6,710	940	16.3%	100	150	250
49-3041	Farm Equipment Mechanics	1,460	1,610	150	10.3%	20	30	50
49-3042	Mobile Hvy Eqpmnt Mechs/Ex Engrns	2,170	2,430	260	12.0%	30	50	80
49-3043	Rail Car Repairers	430	410	(20)	-4.7%	0	10	10
49-3051	Motorboat Mechanics	620	710	90	14.5%	10	20	30
49-3052	Motorcycle Mechanics	610	680	70	11.5%	10	20	30
49-3053	Outdr Powr Eqp/Othr Sm Engrn Mchs	790	910	120	15.2%	10	20	30
49-3091	Bicycle Repairers	250	290	40	16.0%	0	10	10
49-3092	Recreational Vehicle Service Techs	300	350	50	16.7%	10	10	20
49-3093	Tire Repairers/Changers	1,240	1,280	40	3.2%	10	50	60
49-3099 <sup>(7)</sup>	Veh/Mbl Eqp Mechs/Instl/Reprrs/AO	80	90	10	12.5%	0	0	0
49-9000	Other Installation/Maint/Repair Occs	56,180	63,880	7,700	13.7%	770	1,210	1,980
49-9011	Mechanical Door Repairers	210	260	50	23.8%	10	10	20
49-9012	Cntrl/Valve Inst/Rep/Ex Mechn Door	620	690	70	11.3%	10	20	30
49-9021	Heating/AC/Refrig Mechs/Instllrs	4,110	5,630	1,520	37.0%	150	60	210
49-9031	Home Appliance Repairers	1,120	1,160	40	3.6%	10	30	40

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
47-5051	Rock Splitters, Quarry	Moderate-term on-the-job training	26,390	10.45 - 14.67
47-5071 <sup>(8)</sup>	Roustabouts, Oil/Gas	Moderate-term on-the-job training	NA	NA
47-5081	Helpers--Extraction Wrkrs	Short-term on-the-job training	26,720	10.39 - 14.52
47-5099 <sup>(8)</sup>	Extraction Wrkrs/All Other	Moderate-term on-the-job training	NA	NA
<b>49-0000</b>	<b>Installation/Maint/Repair Occupations</b>		<b>36,310</b>	<b>12.79 - 21.31</b>
49-1011	First-Line Sup/Mgrs Mechs/Inst/Rep	Work experience in related occ	52,050	19.32 - 29.64
49-2000	Elect Equip Mechns/Instllrs/Repairrs		NA	NA
49-2011	Computer/ATM/Offc Machn Reprrs	Postsecondary vocational training	34,540	12.54 - 20.33
49-2021	Radio Mechanics	Postsecondary vocational training	43,610	15.16 - 27.23
49-2022	Telecm Eqp Inst/Reprrs/Ex Line Inst	Postsecondary vocational training	42,990	17.64 - 24.92
49-2091	Avionics Techs	Postsecondary vocational training	40,760	17.74 - 21.55
49-2092	Elec Motor/Power Tool/Rel. Reprrs	Postsecondary vocational training	43,740	16.49 - 24.01
49-2093	Elec Installers/Repairers/Trans Eqp	Postsecondary vocational training	35,320	14.11 - 18.80
49-2094	Elec Repairers/Comm/Ind Equip	Postsecondary vocational training	39,590	15.06 - 22.45
49-2095	Elec Reprrs/Powerhse/Substn/Relay	Postsecondary vocational training	53,900	23.78 - 30.05
49-2096	Elec Equip Instlrs/Reprrs/Motor Veh	Postsecondary vocational training	29,350	10.82 - 16.55
49-2097	Elec Home Ent Eqpmnt Inst/Reprrs	Postsecondary vocational training	25,110	9.63 - 13.98
49-2098	Security/Fire Alarm Systems Inst	Postsecondary vocational training	30,570	12.36 - 16.82
49-2099 <sup>(7)</sup>	Elec Equip Mechs/Instlrs/Reprrs/AO	Postsecondary vocational training	NA	NA
49-3000	Vehicle/Mobile Eqp Mechns/Instllrs		NA	NA
49-3011	Aircraft Mechanics/Service Techs	Postsecondary vocational training	40,710	16.13 - 22.69
49-3021	Automotive Body/Related Repairers	Long-term on-the-job training	33,550	12.21 - 19.76
49-3022	Automotive Glass Installers/Reprrs	Long-term on-the-job training	33,080	13.13 - 18.73
49-3023	Automotive Service Techs/Mechanics	Postsecondary vocational training	31,880	11.20 - 18.46
49-3031	Bus/Truck Mechs/Diesel Engrn Spec	Postsecondary vocational training	35,690	14.00 - 20.26
49-3041	Farm Equipment Mechanics	Postsecondary vocational training	27,810	10.69 - 15.88
49-3042	Mobile Hvy Eqpmnt Mechs/Ex Engrns	Postsecondary vocational training	38,560	15.35 - 21.24
49-3043	Rail Car Repairers	Long-term on-the-job training	NA	NA
49-3051	Motorboat Mechanics	Long-term on-the-job training	27,100	10.68 - 15.21
49-3052	Motorcycle Mechanics	Long-term on-the-job training	34,110	11.90 - 22.50
49-3053	Outdr Powr Eqp/Othr Sm Engrn Mchs	Moderate-term on-the-job training	27,170	9.81 - 16.22
49-3091	Bicycle Repairers	Moderate-term on-the-job training	19,440	7.54 - 11.06
49-3092	Recreational Vehicle Service Techs	Long-term on-the-job training	26,900	10.60 - 15.18
49-3093	Tire Repairers/Changers	Short-term on-the-job training	23,420	9.03 - 13.15
49-3099 <sup>(7)</sup>	Veh/Mbl Eqp Mechs/Instl/Reprrs/AO	Moderate-term on-the-job training	NA	NA
49-9000	Other Installation/Maint/Repair Occs		NA	NA
49-9011	Mechanical Door Repairers	Moderate-term on-the-job training	42,750	13.52 - 20.61
49-9012	Cntrl/Valve Inst/Rep/Ex Mechn Door	Moderate-term on-the-job training	45,590	17.57 - 26.49
49-9021	Heating/AC/Refrig Mechs/Instlrs	Long-term on-the-job training	38,300	13.63 - 21.82
49-9031	Home Appliance Repairers	Long-term on-the-job training	31,440	12.07 - 17.33

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
49-9041	Industrial Machinery Mechanics	5,550	6,010	460	8.3%	50	110	160
49-9042	Maint/Repair Wkrs/General	27,270	31,130	3,860	14.2%	390	520	910
49-9043	Maint Wkrs/Machinery	2,180	2,300	120	5.5%	10	50	60
49-9044	Millwrights	2,160	2,180	20	0.9%	0	50	50
49-9045	Refractory Mtrls Reprs/Ex Brickmsns	110	130	20	18.2%	0	0	0
49-9051	Elec Power-Line Installrs/Repairers	2,070	2,080	10	0.5%	0	70	70
49-9052	Telecomm Line Installers/Reprs	2,490	3,030	540	21.7%	50	70	120
49-9061	Camera/Photo Eqpmnt Reprs	10	10	0	0.0%	0	0	0
49-9062	Medical Equipment Repairers	470	570	100	21.3%	10	10	20
49-9063	Musical Instr Repairers/Tuners	220	230	10	4.5%	0	10	10
49-9064	Watch Repairers	130	130	0	0.0%	0	0	0
49-9069	Precision Inst/Eqpmnt Repairers/AO	220	210	(10)	-4.5%	0	10	10
49-9091	Coin/Vend/Amuse Machn Serv/Repr	1,200	1,330	130	10.8%	10	30	40
49-9092	Commercial Drivers	10	20	10	100.0%	0	0	0
49-9093	Fabric Menders/Ex Garment	30	30	0	0.0%	0	0	0
49-9094	Locksmiths/Safe Repairers	340	400	60	17.6%	10	10	20
49-9095	Manufactured Bldg/Mobile Home Inst	200	250	50	25.0%	10	10	20
49-9096	Riggers	370	340	(30)	-8.1%	0	10	10
49-9097	Signal/Track Switch Repairers	80	80	0	0.0%	0	0	0
49-9098	Helpers--Install/Maint/Repair Wkrs	2,890	3,420	530	18.3%	50	100	150
49-9099	Installation/Maint/Repair Wkrs/AO	2,130	2,270	140	6.6%	10	50	60
<b>51-0000</b>	<b>Production Occupations</b>	<b>362,190</b>	<b>374,230</b>	<b>12,040</b>	<b>3.3%</b>	<b>1,200</b>	<b>8,700</b>	<b>9,900</b>
51-1011	F-L Sups/Mgrs of Prdn/Operat Wkrs	23,040	25,790	2,750	11.9%	280	480	760
51-2000	Assemblers and Fabricators	73,060	70,720	(2,340)	-3.2%	0	1,860	1,860
51-2011	Aircraft Struct/Surf/Rig/Sys Assembler	140	120	(20)	-14.3%	0	0	0
51-2021	Coil Winders/Tapers/Finishers	2,630	2,430	(200)	-7.6%	0	60	60
51-2022	Electrical/Electronic Equip Assemblers	7,110	6,170	(940)	-13.2%	0	170	170
51-2023	Electromechanical Eqpmnt Assemblers	1,990	1,900	(90)	-4.5%	0	50	50
51-2031	Engine/Other Machn Assemblers	3,390	3,160	(230)	-6.8%	0	100	100
51-2041	Structural Metal Fabricators/Fitters	3,030	3,160	130	4.3%	10	70	80
51-2091	Fiberglass Laminators/Fabricators	1,880	2,050	170	9.0%	20	50	70
51-2092	Team Assemblers	45,850	44,920	(930)	-2.0%	0	1,190	1,190
51-2093	Timng Device Assemb/Adjusts/Calibr	110	110	0	0.0%	0	0	0
51-2099	Assemblers/Fabricators/All Other	6,950	6,700	(250)	-3.6%	0	180	180
51-3000	Food Processing Wkrs	21,220	23,880	2,660	12.5%	270	490	760
51-3011	Bakers	4,370	4,880	510	11.7%	50	100	150
51-3021	Butchers/Meat Cutters	3,330	3,370	40	1.2%	10	70	80
51-3022	Meat/Poultry/Fish Cutters/Trimmers	1,360	1,650	290	21.3%	30	30	60
51-3023	Slaughterers/Meat Packers	6,620	8,060	1,440	21.8%	140	150	290
51-3091	Food/Tobac Bake/Dry/Mchn Op/Tndrs	680	710	30	4.4%	0	20	20
51-3092	Food Batchmakers	3,280	3,490	210	6.4%	20	80	100

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
49-9041	Industrial Machnry Mechanics	Long-term on-the-job training	41,650	16.36 - 23.61
49-9042	Maint/Repair Wrks/General	Long-term on-the-job training	33,040	12.32 - 19.38
49-9043	Maint Wrks/Machnry	Long-term on-the-job training	33,940	13.44 - 18.67
49-9044	Millwrights	Long-term on-the-job training	47,960	18.79 - 27.24
49-9045	Refractory Mtrls Reprs/Ex Brickmsns	Moderate-term on-the-job training	39,550	15.50 - 21.32
49-9051	Elec Power-Line Installrs/Repairers	Long-term on-the-job training	49,380	20.13 - 27.30
49-9052	Telecomm Line Installers/Reprrs	Long-term on-the-job training	34,110	11.44 - 21.16
49-9061	Camera/Photo Eqpmnt Reprrs	Moderate-term on-the-job training	NA	NA
49-9062	Medical Equipment Repairers	Associate degree	39,870	15.47 - 22.87
49-9063	Musical Instr Repairers/Tuners	Long-term on-the-job training	27,640	10.02 - 16.43
49-9064	Watch Repairers	Long-term on-the-job training	27,290	11.40 - 13.99
49-9069	Precision Inst/Eqpmnt Repairers/AO	Long-term on-the-job training	NA	NA
49-9091	Coin/Vend/Amuse Machn Serv/Repr	Moderate-term on-the-job training	29,710	10.85 - 18.12
49-9092	Commercial Drivers	Moderate-term on-the-job training	NA	NA
49-9093	Fabric Menders/Ex Garment	Moderate-term on-the-job training	NA	NA
49-9094	Locksmiths/Safe Repairers	Moderate-term on-the-job training	28,470	10.21 - 16.50
49-9095	Manufactured Bldg/Mobile Home Inst	Moderate-term on-the-job training	28,690	9.93 - 15.18
49-9096	Riggers	Short-term on-the-job training	49,230	14.77 - 32.83
49-9097	Signal/Track Switch Repairers	Moderate-term on-the-job training	44,250	19.32 - 22.42
49-9098	Helpers--Install/Maint/Repair Wrks	Short-term on-the-job training	22,990	7.94 - 13.84
49-9099	Installation/Maint/Repair Wrks/AO	Moderate-term on-the-job training	NA	NA
<b>51-0000</b>	<b>Production Occupations</b>		<b>30,250</b>	<b>10.45 - 17.39</b>
51-1011	F-L Sups/Mgrs of Prdn/Operat Wrks	Work experience in related occ	49,040	17.07 - 27.34
51-2000	Assemblers and Fabricators		NA	NA
51-2011	Aircraft Struct/Surf/Rig/Sys Assembler	Long-term on-the-job training	34,070	13.38 - 19.07
51-2021	Coil Winders/Tapers/Finishers	Short-term on-the-job training	29,570	10.00 - 18.01
51-2022	Electrical/Electronic Equip Assemblers	Short-term on-the-job training	28,660	9.55 - 17.08
51-2023	Electromechanical Eqpmnt Assemblers	Short-term on-the-job training	27,110	10.64 - 14.35
51-2031	Engine/Other Machn Assemblers	Short-term on-the-job training	33,930	14.12 - 18.79
51-2041	Structural Metal Fabricators/Fitters	Moderate-term on-the-job training	33,120	12.46 - 18.83
51-2091	Fiberglass Laminators/Fabricators	Moderate-term on-the-job training	26,160	10.56 - 14.42
51-2092	Team Assemblers	Moderate-term on-the-job training	26,190	9.79 - 14.92
51-2093	Timng Device Assemb/Adjustrs/Calibr	Moderate-term on-the-job training	28,120	10.15 - 15.91
51-2099	Assemblers/Fabricators/All Other	Moderate-term on-the-job training	NA	NA
51-3000	Food Processing Wrks		NA	NA
51-3011	Bakers	Long-term on-the-job training	21,990	8.42 - 12.33
51-3021	Butchers/Meat Cutters	Long-term on-the-job training	27,630	10.08 - 16.19
51-3022	Meat/Poultry/Fish Cutters/Trimmers	Short-term on-the-job training	22,670	9.20 - 12.44
51-3023	Slaughterers/Meat Packers	Moderate-term on-the-job training	21,270	9.21 - 11.16
51-3091	Food/Tobac Bake/Dry/Mchn Op/Tndrs	Short-term on-the-job training	28,600	10.35 - 16.69
51-3092	Food Batchmakers	Short-term on-the-job training	25,030	9.49 - 14.53

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replace-ments <sup>(2)</sup>	Total <sup>(3)</sup>
51-3093	Food Cooking Machn Oprs/Tendr	1,480	1,600	120	8.1%	10	30	40
51-3099 <sup>(7)</sup>	Food Processing Wrksr/All Other	90	110	20	22.2%	0	0	0
51-4000	Metal Wrksr and Plastic Wrksr	89,730	94,340	4,610	5.1%	460	2,140	2,600
51-4011	Comp-Cntrl Machn Tool Op/M/P	7,780	8,570	790	10.2%	80	130	210
51-4012	Num Tool/Proc Cntrl Programmrs	770	870	100	13.0%	10	10	20
51-4021	Extrud/Draw Mchn Set/Op/Tndrs/M/P	3,350	3,700	350	10.4%	40	110	150
51-4022	Forge Machn Set/Op/Tndrs/M/P	1,910	2,120	210	11.0%	20	30	50
51-4023	Roll Machn Set/Op/Tndrs/M/P	660	640	(20)	-3.0%	0	20	20
51-4031	Cut/Punch/Press Set/Op/Tndrs/M/P	10,830	11,200	370	3.4%	40	250	290
51-4032	Drill/Bore Tool Set/Op/Tndrs/M/P	1,760	1,740	(20)	-1.1%	0	50	50
51-4033	Grind/Lap/Polish/Buff Set/Op/Tnd/M/P	4,620	4,600	(20)	-0.4%	0	90	90
51-4034	Lathe/Turn Tool Set/Op/Tndrs/M/P	3,240	3,220	(20)	-0.6%	0	60	60
51-4035	Mill/Plane Mchn Set/Op/Tndrs/M/P	800	830	30	3.8%	0	10	10
51-4041	Machinists	14,350	14,850	500	3.5%	50	330	380
51-4051	Metal-Refining Furnace Ops/Tendr	580	560	(20)	-3.4%	0	10	10
51-4052	Pourers/Casters/Metal	700	670	(30)	-4.3%	0	20	20
51-4061	Model Makers/Metal/Plastic	270	310	40	14.8%	0	10	10
51-4062	Patternmakers/Metal/Plastic	690	670	(20)	-2.9%	0	20	20
51-4071	Foundry Mold/Coremakers	1,370	1,250	(120)	-8.8%	0	30	30
51-4072	Mold/Core/Cast Set/Op/Tndrs/M/P	6,260	6,790	530	8.5%	50	160	210
51-4081	Mult Mchn Tool Set/Op/Tndrs/M/P	4,910	5,440	530	10.8%	50	140	190
51-4111	Tool and Die Makers	5,490	5,490	0	0.0%	0	120	120
51-4121	Welders/Cutters/Solderers/Brazers	12,020	13,590	1,570	13.1%	160	340	500
51-4122	Weld/Solder/Braze Mchn Set/Op/Tnd	2,530	2,390	(140)	-5.5%	0	70	70
51-4191	Heat Treat Eqp Set/Op/Tndrs/M/P	950	940	(10)	-1.1%	0	30	30
51-4192	Lay-Out Wrksr/Metal/Plastic	280	310	30	10.7%	0	0	0
51-4193	Plate/Coat Mchn Set/Op/Tndrs/M/P	960	930	(30)	-3.1%	0	20	20
51-4194	Tool Grinders/Filers/Sharpeners	910	830	(80)	-8.8%	0	30	30
51-4199	Metal Wrksr/Plastic Wrksr/All Other	1,760	1,830	70	4.0%	10	40	50
51-5000	Printing Wrksr	20,720	20,710	(10)	0.0%	0	510	510
51-5011	Bindery Wrksr	6,310	6,290	(20)	-0.3%	0	170	170
51-5012	Bookbinders	180	180	0	0.0%	0	10	10
51-5021	Job Printers	1,900	2,090	190	10.0%	20	50	70
51-5022	Prepress Techs/Wrksr	3,630	3,150	(480)	-13.2%	0	90	90
51-5023	Printing Machn Oprs	8,650	8,950	300	3.5%	30	200	230
51-5099 <sup>(7)</sup>	Printing Wrksr/All Other	50	50	0	0.0%	0	0	0
51-6000	Textile/Apparel/Furnishng Wrksr	15,750	15,370	(380)	-2.4%	0	300	300
51-6011	Laundry/Dry-Cleaning Wrksr	4,200	4,670	470	11.2%	50	110	160
51-6021	Pressers/Textile/Garment/Rel Mtrl	1,210	1,250	40	3.3%	0	20	20
51-6031	Sewing Machine Oprs	5,320	5,170	(150)	-2.8%	0	70	70

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
51-3093	Food Cooking Machn Oprs/Tendrs	Short-term on-the-job training	27,870	11.25 - 16.16
51-3099 <sup>(7)</sup>	Food Processing Wrksr/All Other	Short-term on-the-job training	NA	NA
51-4000	Metal Wrksr and Plastic Wrksr		NA	NA
51-4011	Comp-Cntrl Machn Tool Op/M/P	Moderate-term on-the-job training	31,650	11.58 - 18.24
51-4012	Num Tool/Procss Cntrl Programmrs	Long-term on-the-job training	40,800	15.78 - 22.90
51-4021	Extrud/Draw Mchn Set/Op/Tndrs/M/P	Moderate-term on-the-job training	27,360	10.65 - 15.69
51-4022	Forge Machn Set/Op/Tndrs/M/P	Moderate-term on-the-job training	29,950	9.97 - 18.17
51-4023	Roll Machn Set/Op/Tndrs/M/P	Moderate-term on-the-job training	32,650	11.69 - 19.62
51-4031	Cut/Punch/Press Set/Op/Tndrs/M/P	Moderate-term on-the-job training	28,210	10.74 - 16.19
51-4032	Drill/Bore Tool Set/Op/Tndrs/M/P	Moderate-term on-the-job training	29,110	10.85 - 16.94
51-4033	Grind/Lap/Polish/Buff Set/Op/Tnd/M/P	Moderate-term on-the-job training	29,520	11.15 - 17.17
51-4034	Lathe/Turn Tool Set/Op/Tndrs/M/P	Moderate-term on-the-job training	32,360	12.46 - 18.23
51-4035	Mill/Plane Mchn Set/Op/Tndrs/M/P	Moderate-term on-the-job training	29,050	10.81 - 16.78
51-4041	Machinists	Long-term on-the-job training	35,240	13.49 - 20.20
51-4051	Metal-Refining Furnace Ops/Tendrs	Moderate-term on-the-job training	34,630	14.00 - 19.70
51-4052	Pourers/Casters/Metal	Moderate-term on-the-job training	30,780	12.19 - 17.43
51-4061	Model Makers/Metal/Plastic	Moderate-term on-the-job training	41,980	16.80 - 23.73
51-4062	Patternmakers/Metal/Plastic	Moderate-term on-the-job training	37,180	13.63 - 21.80
51-4071	Foundry Mold/Coremakers	Moderate-term on-the-job training	27,430	10.87 - 15.42
51-4072	Mold/Core/Cast Set/Op/Tndrs/M/P	Moderate-term on-the-job training	27,560	10.35 - 15.91
51-4081	Mult Mchn Tool Set/Op/Tndrs/M/P	Moderate-term on-the-job training	32,000	12.32 - 17.53
51-4111	Tool and Die Makers	Long-term on-the-job training	43,010	17.21 - 24.52
51-4121	Welders/Cutters/Solderers/Brazers	Postsecondary vocational training	32,440	13.14 - 17.69
51-4122	Weld/Solder/Braze Mchn Set/Op/Tnd	Moderate-term on-the-job training	32,600	12.69 - 17.55
51-4191	Heat Treat Eqp Set/Op/Tndrs/M/P	Moderate-term on-the-job training	31,180	11.99 - 17.56
51-4192	Lay-Out Wrksr/Metal/Plastic	Moderate-term on-the-job training	38,430	15.49 - 21.45
51-4193	Plate/Coat Mchn Set/Op/Tndrs/M/P	Moderate-term on-the-job training	25,450	9.79 - 14.15
51-4194	Tool Grinders/Files/Sharpeners	Moderate-term on-the-job training	34,300	13.17 - 19.76
51-4199	Metal Wrksr/Plastic Wrksr/All Other	Moderate-term on-the-job training	NA	NA
51-5000	Printing Wrksr		NA	NA
51-5011	Bindery Wrksr	Moderate-term on-the-job training	23,180	7.88 - 13.33
51-5012	Bookbinders	Moderate-term on-the-job training	35,960	13.33 - 21.19
51-5021	Job Printers	Long-term on-the-job training	38,690	13.81 - 21.54
51-5022	Prepress Techs/Wrksr	Long-term on-the-job training	34,570	12.47 - 20.36
51-5023	Printing Machn Oprs	Moderate-term on-the-job training	32,250	11.74 - 18.44
51-5099 <sup>(7)</sup>	Printing Wrksr/All Other	Moderate-term on-the-job training	NA	NA
51-6000	Textile/Apparel/Furnishng Wrksr		NA	NA
51-6011	Laundry/Dry-Cleaning Wrksr	Moderate-term on-the-job training	17,740	7.04 - 9.86
51-6021	Pressers/Textile/Garment/Rel Mtrls	Short-term on-the-job training	18,750	7.76 - 10.13
51-6031	Sewing Machine Oprs	Moderate-term on-the-job training	21,680	8.46 - 11.85

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replace-ments <sup>(2)</sup>	Total <sup>(3)</sup>
51-6041	Shoe/Leather Wrks/Repairers	420	330	(90)	-21.4%	0	10	10
51-6042	Shoe Machine Oprs/Tndrs	460	340	(120)	-26.1%	0	10	10
51-6051	Sewers/Hand	250	170	(80)	-32.0%	0	0	0
51-6052	Tailors/Dressmakrs/Custom Sewrs	1,390	1,320	(70)	-5.0%	0	20	20
51-6061	Textl Bleach/Dye Mchn Ops/Tndrs	220	140	(80)	-36.4%	0	10	10
51-6062	Textl Cuttng Mchn Set/Op/Tndrs	480	430	(50)	-10.4%	0	10	10
51-6063	Textl Knit/Weav Mchn Set/Op/Tndrs	520	350	(170)	-32.7%	0	10	10
51-6064	Textl Wind/Twist/Draw Set/Op/Tndrs	240	190	(50)	-20.8%	0	10	10
51-6091	Extr/Form Set/Op/Tnd/Syn/Glss Fibr	210	260	50	23.8%	10	0	10
51-6092	Fabric/Apparel Patternmakers	170	150	(20)	-11.8%	0	10	10
51-6093	Upholsterers	530	460	(70)	-13.2%	0	10	10
51-6099	Textile/Apparel/Furnishng Wrks/AO	150	130	(20)	-13.3%	0	0	0
51-7000	Woodworkers	12,280	12,370	90	0.7%	10	320	330
51-7011	Cabinetmakers/Bench Carpenters	3,790	3,970	180	4.7%	20	100	120
51-7021	Furniture Finishers	670	690	20	3.0%	0	10	10
51-7031	Model Makers/Wood	80	80	0	0.0%	0	0	0
51-7032	Patternmakers/Wood	170	170	0	0.0%	0	10	10
51-7041	Saw Machn Set/Op/Tndrs/Wood	2,230	2,170	(60)	-2.7%	0	60	60
51-7042	Woodwrk Mchn Set/Op/Tndrs/Ex Saw	4,820	4,780	(40)	-0.8%	0	130	130
51-7099	WoodWrks, All Other	520	520	0	0.0%	0	20	20
51-8000	Plant and System Oprs	5,500	5,490	(10)	-0.2%	0	160	160
51-8010 <sup>(6)</sup>	Pwr Plnt Oprs/Distributrs/Dispatchrs	1,330	1,270	(60)	-4.5%	0	40	40
51-8011 <sup>(6)</sup>	Nuc Power Reactor Opr	(8)	(8)	(8)	(8)	(8)	(8)	(8)
51-8012 <sup>(6)</sup>	Power Dist/Disp	(8)	(8)	(8)	(8)	(8)	(8)	(8)
51-8013 <sup>(6)</sup>	Power Plant Opr	(8)	(8)	(8)	(8)	(8)	(8)	(8)
51-8021	Stationary Engineers/Boiler Oprs	1,070	1,050	(20)	-1.9%	0	20	20
51-8031	Watr/Lqd Waste Trtmtnt Plant/Sys Op	1,830	1,940	110	6.0%	10	60	70
51-8091	Chemical Plant/System Oprs	760	700	(60)	-7.9%	0	20	20
51-8092	Gas Plant Oprs	100	110	10	10.0%	0	0	0
51-8093	Petrol Pump Sys Op/Refinery Op/Gaug	50	50	0	0.0%	0	0	0
51-8099	Plant/System Oprs/All Other	370	390	20	5.4%	0	10	10
51-9000	Other Production Occupations	100,880	105,560	4,680	4.6%	470	2,440	2,910
51-9011	Chemical Equipment Oprs/Tndrs	1,600	1,490	(110)	-6.9%	0	50	50
51-9012	Sep/Filtr/Clarify/Prec/Still Set/Op/Tnd	1,890	1,910	20	1.1%	0	60	60
51-9021	Crush/Grnd/Polish Set/Op/Tndrs	1,860	1,780	(80)	-4.3%	0	50	50
51-9022	Grinding/Polishing Wrks/Hand	1,940	2,000	60	3.1%	10	50	60
51-9023	Mix/Blend Machn Settrs/Oprs/Tndrs	2,870	2,610	(260)	-9.1%	0	80	80
51-9031	Cutters/Trimmers/Hand	550	620	70	12.7%	10	10	20
51-9032	Cut/Slice Machn Settrs/Oprs/Tndrs	3,240	3,530	290	9.0%	30	70	100
51-9041	Extr/Form/Press/Compct Set/Op/Tnd	2,740	2,640	(100)	-3.6%	0	70	70
51-9051	Furnce/Kln/Ov/Drier/Kettle Op/Tndrs	600	540	(60)	-10.0%	0	10	10

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
51-6041	Shoe/Leather Wrks/Repairers	Long-term on-the-job training	20,470	8.38 - 11.03
51-6042	Shoe Machine Oprs/Tndrs	Moderate-term on-the-job training	19,790	7.58 - 11.43
51-6051	Sewers/Hand	Short-term on-the-job training	19,910	7.96 - 10.25
51-6052	Tailors/Dressmakrs/Custom Sewrs	Work experience in related occ	20,170	7.89 - 10.88
51-6061	Textl Bleach/Dye Mchn Ops/Tndrs	Moderate-term on-the-job training	27,130	10.55 - 15.46
51-6062	Textl Cuttng Mchn Set/Ops/Tndrs	Moderate-term on-the-job training	22,630	9.06 - 11.47
51-6063	Textl Knit/Weav Mchn Set/Op/Tndrs	Long-term on-the-job training	27,000	10.23 - 15.84
51-6064	Textl Wind/Twist/Draw Set/Op/Tndrs	Moderate-term on-the-job training	24,080	9.18 - 14.07
51-6091	Extr/Form Set/Op/Tnd/Syn/Glss Fibr	Moderate-term on-the-job training	31,010	9.58 - 16.97
51-6092	Fabric/Apparel Patternmakers	Long-term on-the-job training	27,340	10.39 - 14.10
51-6093	Upholsterers	Long-term on-the-job training	31,400	12.30 - 17.00
51-6099	Textile/Apparel/Furnishng Wrks/AO	Moderate-term on-the-job training	NA	NA
51-7000	Woodworkers		NA	NA
51-7011	Cabinetmakers/Bench Carpenters	Long-term on-the-job training	28,260	10.71 - 16.04
51-7021	Furniture Finishers	Long-term on-the-job training	24,100	9.64 - 12.92
51-7031	Model Makers/Wood	Long-term on-the-job training	30,460	11.99 - 17.53
51-7032	Patternmakers/Wood	Long-term on-the-job training	31,970	13.43 - 17.58
51-7041	Saw Machn Set/Op/Tndrs/Wood	Moderate-term on-the-job training	23,670	9.38 - 13.19
51-7042	Woodwrk Mchn Set/Op/Tndrs/Ex Saw	Moderate-term on-the-job training	24,920	9.66 - 14.42
51-7099	WoodWrks, All Other	Moderate-term on-the-job training	NA	NA
51-8000	Plant and System Oprs		NA	NA
51-8010 <sup>(8)</sup>	Pwr Plnt Oprs/Distributrs/Dispatchrs		NA	NA
51-8011 <sup>(8)</sup>	Nuc Power Reactor Opr	Long-term on-the-job training	NA	NA
51-8012 <sup>(8)</sup>	Power Dist/Disp	Long-term on-the-job training	60,900	23.95 - 35.47
51-8013 <sup>(8)</sup>	Power Plant Opr	Long-term on-the-job training	44,110	15.50 - 27.57
51-8021	Stationary Engineers/Boiler Oprs	Long-term on-the-job training	36,870	15.26 - 20.40
51-8031	Watr/Lqd Waste Trtmnt Plant/Sys Op	Long-term on-the-job training	37,910	15.66 - 20.93
51-8091	Chemical Plant/System Oprs	Long-term on-the-job training	32,710	13.69 - 17.44
51-8092	Gas Plant Oprs	Long-term on-the-job training	45,440	14.26 - 27.61
51-8093	Petrol Pump Sys Op/Refinery Op/Gaug	Long-term on-the-job training	51,540	20.39 - 28.60
51-8099	Plant/System Oprs/All Other	Long-term on-the-job training	NA	NA
51-9000	Other Production Occupations		NA	NA
51-9011	Chemical Equipment Oprs/Tndrs	Moderate-term on-the-job training	38,840	15.13 - 21.35
51-9012	Sep/Filtr/Clarify/Prec/Still Set/Op/Tnd	Moderate-term on-the-job training	32,000	12.89 - 17.45
51-9021	Crush/Grnd/Polish Set/Op/Tndrs	Moderate-term on-the-job training	29,390	11.70 - 16.01
51-9022	Grinding/Polishing Wrks/Hand	Moderate-term on-the-job training	26,520	9.32 - 15.32
51-9023	Mix/Blend Machn Settrs/Oprs/Tndrs	Moderate-term on-the-job training	30,160	11.66 - 16.72
51-9031	Cutters/Trimmers/Hand	Short-term on-the-job training	26,250	10.36 - 14.62
51-9032	Cut/Slice Machn Settrs/Oprs/Tndrs	Moderate-term on-the-job training	27,680	10.69 - 15.85
51-9041	Extr/Form/Press/Compct Set/Op/Tnd	Moderate-term on-the-job training	34,320	12.74 - 20.73
51-9051	Furnce/Kln/Ov/Drier/Kettle Op/Tndrs	Moderate-term on-the-job training	29,630	11.48 - 16.50

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
51-9061	Inspect/Test/Sort/Sample/Weighers	14,010	15,260	1,250	8.9%	130	320	450
51-9071	Jewel/Precious Stone/Metal Wrks	530	540	10	1.9%	0	10	10
51-9081	Dental Lab Techs	1,110	1,110	0	0.0%	0	20	20
51-9082	Medical Appliance Techs	130	150	20	15.4%	0	0	0
51-9083	Ophthalmic Lab Techs	740	800	60	8.1%	10	20	30
51-9111	Packagng/Filling Machn Oprs/Tendrs	17,290	19,360	2,070	12.0%	210	340	550
51-9121	Coat/Paint/Spray Mchn Set/Op/Tndrs	5,660	6,030	370	6.5%	40	150	190
51-9122	Painters/Trans Equipment	1,030	1,220	190	18.4%	20	30	50
51-9123	Painting/Coating/Decorating Wrks	1,640	1,820	180	11.0%	20	40	60
51-9131	Photographic Process Wrks	760	820	60	7.9%	10	20	30
51-9132	Photographic Processng Mchn Oprs	820	880	60	7.3%	10	20	30
51-9141 <sup>(8)</sup>	Semiconductor Processors	(8)	(8)	(8)	(8)	(8)	(8)	(8)
51-9191	Cementng/Glung Mchn Oprs/Tendrs	800	820	20	2.5%	0	20	20
51-9192	Cln/Wash/Mtl Picking Eqp Ops/Tndrs	810	860	50	6.2%	10	20	30
51-9193	Coolng/Freezng Eqpmnt Ops/Tendrs	130	150	20	15.4%	0	0	0
51-9194	Etchers/Engravers	310	310	0	0.0%	0	10	10
51-9195	Moldrs/Shaprs/Castrs/Ex Mtl/Plastic	660	710	50	7.6%	0	20	20
51-9196	Paper Gds Machn Settrs/Oprs/Tndrs	7,440	7,340	(100)	-1.3%	0	160	160
51-9197	Tire Builders	130	140	10	7.7%	0	0	0
51-9198	Helpers--Production Wrks	17,810	18,240	430	2.4%	40	500	540
51-9199 <sup>(8)</sup>	Production Wrks/All Other	11,810	11,910	100	0.8%	10	280	290
<b>53-0000</b>	<b>Trans/Material Moving Occupations</b>	<b>226,980</b>	<b>255,550</b>	<b>28,570</b>	<b>12.6%</b>	<b>2,860</b>	<b>4,870</b>	<b>7,730</b>
53-1000	Supervisors, Trans/Mtrl Moving Wrks	8,990	10,350	1,360	15.1%	140	210	350
53-1011	Aircraft Cargo Handling Supvsrs	190	220	30	15.8%	0	10	10
53-1021	F-L Sups/Mgrs Help/Lab/Matrl Movrs	3,680	4,190	510	13.9%	50	90	140
53-1031	F-L Sups/Mgrs Trans/Matrl-Mov Oprs	5,120	5,940	820	16.0%	80	120	200
53-2000 <sup>(9)</sup>	Air Transportation Wrks	1,120	1,280	160	14.3%	20	30	50
53-2011	Airline Pilots/Copilots/Flight Engrns	630	740	110	17.5%	10	20	30
53-2012	Commercial Pilots	260	300	40	15.4%	0	10	10
53-2021	Air Traffic Controllers	220	240	20	9.1%	0	10	10
53-2022 <sup>(8)</sup>	Airfield Operations Specialists	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-2099 <sup>(7,8)</sup>	Air Trans Wrks/All Other	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-3000	Motor Vehicle Oprs	101,460	121,150	19,690	19.4%	1,970	1,520	3,490
53-3011	Ambulance Drivers/Atts/Ex EMTs	780	980	200	25.6%	20	10	30
53-3021	Bus Drivers/Transit/Intercity	3,300	4,020	720	21.8%	70	70	140
53-3022	Bus Drivers/School	9,480	11,780	2,300	24.3%	230	210	440
53-3031	Driver/Sales Wrks	7,610	7,950	340	4.5%	30	120	150
53-3032	Truck Drivers/Heavy/Tractor-Trailer	51,170	61,120	9,950	19.4%	1,000	840	1,840
53-3033	Truck Drivers/Light or Delivery Srvc	25,020	30,210	5,190	20.7%	520	230	750
53-3041	Taxi Drivers and Chauffeurs	3,180	3,980	800	25.2%	80	30	110

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
51-9061	Inspect/Test/Sort/Sample/Weighers	Moderate-term on-the-job training	29,890	10.49 - 17.26
51-9071	Jewel/Precious Stone/Metal Wrkrs	Postsecondary vocational training	36,980	14.36 - 20.18
51-9081	Dental Lab Techs	Long-term on-the-job training	31,710	11.23 - 16.57
51-9082	Medical Appliance Techs	Long-term on-the-job training	36,620	12.70 - 20.80
51-9083	Ophthalmic Lab Techs	Moderate-term on-the-job training	26,940	10.01 - 15.36
51-9111	Packagng/Filling Machn Oprs/Tndrs	Short-term on-the-job training	25,500	9.71 - 14.87
51-9121	Coat/Paint/Spray Mchn Set/Op/Tndrs	Moderate-term on-the-job training	30,170	11.54 - 17.19
51-9122	Painters/Trans Equipment	Moderate-term on-the-job training	33,220	13.72 - 17.61
51-9123	Painting/Coating/Decorating Wrkrs	Short-term on-the-job training	24,490	8.66 - 13.46
51-9131	Photographic Process Wrkrs	Moderate-term on-the-job training	21,050	7.88 - 11.36
51-9132	Photographic Processng Mchn Oprs	Short-term on-the-job training	21,530	8.33 - 11.56
51-9141 <sup>(8)</sup>	Semiconductor Processors	Associate degree	NA	NA
51-9191	Cementng/Gluing Mchn Oprs/Tndrs	Moderate-term on-the-job training	28,400	10.18 - 16.40
51-9192	Cln/Wash/Mtl Picking Eqp Ops/Tndrs	Moderate-term on-the-job training	27,530	11.45 - 14.34
51-9193	Coolng/Freezng Eqpmnt Ops/Tndrs	Moderate-term on-the-job training	29,720	11.90 - 16.75
51-9194	Etchers/Engravers	Long-term on-the-job training	31,280	11.73 - 17.66
51-9195	Moldrs/Shaprs/Castrs/Ex Mtl/Plastic	Moderate-term on-the-job training	30,080	11.05 - 16.36
51-9196	Paper Gds Machn Settrs/Oprs/Tndrs	Moderate-term on-the-job training	32,790	13.43 - 18.10
51-9197	Tire Builders	Moderate-term on-the-job training	22,340	9.31 - 12.44
51-9198	Helpers--Production Wrkrs	Short-term on-the-job training	23,190	8.63 - 13.27
51-9199 <sup>(8)</sup>	Production Wrkrs/All Other	Moderate-term on-the-job training	NA	NA
<b>53-0000</b>	<b>Trans/Material Moving Occupations</b>		<b>27,740</b>	<b>9.09 - 16.37</b>
53-1000	Supervisors, Trans/Mtrl Moving Wrkrs		NA	NA
53-1011	Aircraft Cargo Handling Supvsrs	Work experience in related occ	44,050	15.53 - 25.78
53-1021	F-L Sups/Mgrs Help/Lab/Matrl Movrs	Work experience in related occ	40,390	14.37 - 23.61
53-1031	F-L Sups/Mgrs Trans/Matrl-Mov Oprs	Work experience in related occ	46,770	16.57 - 26.52
53-2000 <sup>(8)</sup>	Air Transportation Wrkrs		NA	NA
53-2011	Airline Pilots/Copilots/Flight Enginrs	Bachelor's degree	53,070	NA
53-2012	Commercial Pilots	Postsecondary vocational training	48,030	NA
53-2021	Air Traffic Controllers	Bachelor's degree	71,310	21.91 - 43.61
53-2022 <sup>(8)</sup>	Airfield Operations Specialists	Long-term on-the-job training	NA	NA
53-2099 <sup>(7,8)</sup>	Air Trans Wrkrs/All Other	Moderate-term on-the-job training	NA	NA
53-3000	Motor Vehicle Oprs		NA	NA
53-3011	Ambulance Drivers/Atts/Ex EMTs	Moderate-term on-the-job training	16,940	6.47 - 9.86
53-3021	Bus Drivers/Transit/Intercity	Moderate-term on-the-job training	33,130	12.03 - 20.13
53-3022	Bus Drivers/School	Short-term on-the-job training	24,080	9.53 - 13.22
53-3031	Driver/Sales Wrkrs	Short-term on-the-job training	25,620	8.02 - 16.02
53-3032	Truck Drivers/Heavy/Tractor-Trailer	Moderate-term on-the-job training	36,940	13.97 - 21.06
53-3033	Truck Drivers/Light or Delivery Svcs	Short-term on-the-job training	23,860	8.09 - 13.95
53-3041	Taxi Drivers and Chauffeurs	Short-term on-the-job training	19,260	7.56 - 10.19

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Estimated Employment <sup>(1)</sup>				Estimated Average Annual Openings <sup>(1)</sup>		
		2002	2012	Change	Percent Change	New Jobs	Replacements <sup>(2)</sup>	Total <sup>(3)</sup>
53-3099	Motor Vehicle Oprs/All Other	930	1,120	190	20.4%	20	10	30
53-4000	Rail Transportation Wrks	1,870	1,710	(160)	-8.6%	0	50	50
53-4011	Locomotive Engineers	810	750	(60)	-7.4%	0	20	20
53-4012 <sup>(6)</sup>	Locomotive Firers	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-4013 <sup>(6)</sup>	Rail Yard Engrs/Dinkey Ops/Hostlr	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-4021	Railroad Brake/Signal/Switch Oprs	250	190	(60)	-24.0%	0	0	0
53-4031	Railroad Conductors/Yardmasters	780	740	(40)	-5.1%	0	20	20
53-4099 <sup>(6)</sup>	Rail Trans Wrks/All Other	30	30	0	0.0%	0	0	0
53-5000 <sup>(6)</sup>	Water Transportation Wrks	1,590	1,640	50	3.1%	10	50	60
53-5011	Sailors and Marine Oilers	1,250	1,290	40	3.2%	10	40	50
53-5021	Cptns/Mates/Pilots of Watr Vessels	340	340	0	0.0%	0	10	10
53-5022	Motorboat Oprs	10	10	0	0.0%	0	0	0
53-5031 <sup>(6)</sup>	Ship Engineers	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-5099 <sup>(7)(8)</sup>	Water Trans Wrks, AO	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-6000 <sup>(6)</sup>	Other Transportation Wrks	2,660	2,860	200	7.5%	20	100	120
53-6011 <sup>(6)</sup>	Bridge and Lock Tenders	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-6021	Parking Lot Attendants	930	990	60	6.5%	10	30	40
53-6031	Service Station Attendants	1,440	1,560	120	8.3%	10	70	80
53-6041 <sup>(6)</sup>	Traffic Techs	(8)	(8)	(8)	(8)	(8)	(8)	(8)
53-6051	Transportation Inspectors	300	320	20	6.7%	0	10	10
53-6099 <sup>(6)</sup>	Trans Wrks/All Other	300	300	0	0.0%	0	10	10
53-7000	Material Moving Wrks	108,980	116,260	7,280	6.7%	730	2,900	3,630
53-7011	Conveyor Oprs and Tenders	1,160	1,240	80	6.9%	10	30	40
53-7021	Crane and Tower Oprs	910	1,020	110	12.1%	10	20	30
53-7031	Dredge Oprs	30	30	0	0.0%	0	0	0
53-7032	Excvtng/Loadng Mchn/Dragline Oprs	820	950	130	15.9%	10	20	30
53-7033	Loadng Mchn Oprs/Undrgrnd Mining	40	40	0	0.0%	0	0	0
53-7041	Hoist and Winch Oprs	90	100	10	11.1%	0	0	0
53-7051	Industrial Truck/Tractor Oprs	19,530	21,290	1,760	9.0%	180	370	550
53-7061	Cleaners of Vehicles/Equipment	7,160	7,740	580	8.1%	60	250	310
53-7062	Labrs/Frght/Stock/Matrl Movers/Hand	45,620	47,010	1,390	3.0%	140	1,490	1,630
53-7063	Machn Feeders/Offbearers	6,200	6,180	(20)	-0.3%	0	170	170
53-7064	Packers/Packagers/Hand	24,340	27,360	3,020	12.4%	300	460	760
53-7071	Gas Compressor/Gas Station Oprs	30	30	0	0.0%	0	0	0
53-7072	Pump Oprs/Ex Wellhead Pumpers	80	100	20	25.0%	0	0	0
53-7081	Refuse/Recyclable Mtrl Collectors	2,010	2,260	250	12.4%	30	50	80
53-7121	Tank Car, Truck, and Ship Loaders	50	50	0	0.0%	0	0	0
53-7199	Material Moving Wrks/All Other	930	870	(60)	-6.5%	0	30	30

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

SOC Code	Occupational Title	Typical Education and Training Path <sup>(4)</sup>	Estimated Salary and Wages	
			Average Annual Salary (\$) <sup>(5)</sup>	Hourly Wage Rate - Middle Range(\$) <sup>(6)</sup>
53-3099	Motor Vehicle Oprs/All Other	Short-term on-the-job training	NA	NA
53-4000	Rail Transportation Wrks		NA	NA
53-4011	Locomotive Engineers	Work experience in related occ	58,960	23.50 - 34.46
53-4012 <sup>(8)</sup>	Locomotive Firers	Work experience in related occ	NA	NA
53-4013 <sup>(8)</sup>	Rail Yard Engrs/Dinkey Ops/Hostlr	Work experience in related occ	NA	NA
53-4021	Railroad Brake/Signal/Switch Oprs	Work experience in related occ	NA	NA
53-4031	Railroad Conductors/Yardmasters	Work experience in related occ	52,030	19.96 - 27.98
53-4099 <sup>(8)</sup>	Rail Trans Wrks/All Other	Moderate-term on-the-job training	NA	NA
53-5000 <sup>(9)</sup>	Water Transportation Wrks		NA	NA
53-5011	Sailors and Marine Oilers	Short-term on-the-job training	26,110	9.08 - 15.49
53-5021	Cptns/Mates/Pilots of Watr Vessels	Work experience in related occ	51,330	18.25 - 32.23
53-5022	Motorboat Oprs	Short-term on-the-job training	NA	NA
53-5031 <sup>(8)</sup>	Ship Engineers	Postsecondary vocational training	NA	NA
53-5099 <sup>(7)(8)</sup>	Water Trans Wrks, AO	Short-term on-the-job training	NA	NA
53-6000 <sup>(9)</sup>	Other Transportation Wrks		NA	NA
53-6011 <sup>(8)</sup>	Bridge and Lock Tenders	Short-term on-the-job training	41,680	16.84 - 23.86
53-6021	Parking Lot Attendants	Short-term on-the-job training	18,600	7.65 - 9.98
53-6031	Service Station Attendants	Short-term on-the-job training	18,320	7.67 - 9.77
53-6041 <sup>(8)</sup>	Traffic Techs	Short-term on-the-job training	NA	NA
53-6051	Transportation Inspectors	Work experience in related occ	47,310	13.06 - 29.12
53-6099 <sup>(8)</sup>	Trans Wrks/All Other	Short-term on-the-job training	NA	NA
53-7000	Material Moving Wrks		NA	NA
53-7011	Conveyor Oprs and Tenders	Short-term on-the-job training	27,090	10.17 - 15.30
53-7021	Crane and Tower Oprs	Moderate-term on-the-job training	36,510	13.42 - 21.03
53-7031	Dredge Oprs	Short-term on-the-job training	NA	NA
53-7032	Excvtng/Loadng Mchn/Dragline Oprs	Moderate-term on-the-job training	38,190	14.12 - 21.65
53-7033	Loadng Mchn Oprs/Undrgrnd Mining	Short-term on-the-job training	38,240	15.21 - 21.89
53-7041	Hoist and Winch Oprs	Moderate-term on-the-job training	25,280	9.77 - 13.34
53-7051	Industrial Truck/Tractor Oprs	Short-term on-the-job training	28,540	11.27 - 15.92
53-7061	Cleaners of Vehicles/Equipment	Short-term on-the-job training	19,500	7.29 - 10.98
53-7062	Labrs/Frght/Stock/Matrl Movers/Hand	Short-term on-the-job training	22,570	8.29 - 12.74
53-7063	Machn Feeders/Offbearers	Short-term on-the-job training	22,940	8.85 - 12.91
53-7064	Packers/Packagers/Hand	Short-term on-the-job training	20,250	7.52 - 11.53
53-7071	Gas Compressor/Gas Station Oprs	Moderate-term on-the-job training	NA	NA
53-7072	Pump Oprs/Ex Wellhead Pumpers	Moderate-term on-the-job training	35,450	10.32 - 24.54
53-7081	Refuse/Recyclable Mtrl Collectors	Short-term on-the-job training	26,480	8.60 - 16.36
53-7121	Tank Car, Truck, and Ship Loaders	Moderate-term on-the-job training	26,290	11.26 - 13.62
53-7199	Material Moving Wrks/All Other	Short-term on-the-job training	NA	NA

(continued)



**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

Notes:

1. Employment includes self-employed and unpaid family workers. Employment is rounded to the nearest ten, with employment less than five rounded to zero. Totals may not add due to rounding.
2. Replacements are an estimate of the number of job openings expected because people have permanently left a given occupation. Permanent exits occur if someone dies, retires, or otherwise leaves the labor force. Permanent exits also include openings resulting from someone permanently changing occupations. For example, a person leaves their job as a cashier and becomes a truck driver. Openings resulting from people changing employers, but staying in the same occupation are not included.
3. Total openings are the sum of new jobs and replacements.
4. Typical education and training path gives a general indication of the education or training typically needed in the occupation. There may be other pathways into the occupation, as well as additional educational, training, or licensing requirements.  
  
Short-Term On-the-Job Training: These occupations require no more than one month of on-the-job training and the training usually happens at the workplace.  
  
Moderate-Term On-the-Job Training: Training for these occupations usually occurs at the workplace and lasts from one to twelve months.  
  
Long-Term On-the-Job Training: These occupations require more than one year of on-the-job training, or combined work experience and classroom instruction.  
  
Work Experience in Related Occupation: Occupations in this category require skills and experience gained in other jobs.  
  
Postsecondary Vocational Training: These formal training programs last from a few weeks to more than a year, and are offered at vocational or technical schools.  
  
Associate Degree: This degree requires two years of full-time academic work beyond high school.  
  
Bachelor's Degree: This degree requires four or five years of full-time academic work at a college or university.  
  
Master's Degree: This degree requires one to two years of full-time study beyond a bachelor's degree.  
  
Doctoral Degree: This degree usually requires at least three years of full-time study beyond a bachelor's degree.  
  
First Professional Degree: These degrees typically require at least two years of full-time study beyond a bachelor's degree.  
  
Degree & Work Experience: These occupations require a bachelor's or higher degree, in addition to work experience in a related non-managerial position.
5. Average Annual Salary: An occupation's average hourly wage is calculated by summing the wages of all employees in a given occupation and then dividing by the total number of employees in that occupation. In most cases, the annual average salary is equal to the average hourly wage multiplied by 2,080.
6. Hourly Wage Rate - Middle Range: The middle range identifies the 25th and 75th percentiles in the hourly wage distribution for a given occupation. Fifty percent of the workers in the occupation earn wages in this range. In most cases, the entry level wage is at or below the 25th percentile.
7. This code is specific to the Occupational Employment Statistics (OES) Survey and is not an official SOC code.
8. 19-4099 includes employment for 19-4051. Education/training and wages are shown individually, if available.  
30-2020 includes employment for 33-2021 and 30-2022. Education/training and wages are shown individually, if available.  
47-5040 includes employment for 47-5041 and 47-5042. Education/training and wages are shown individually, if available.  
47-5099 includes employment for 47-5071. Education/training and wages are shown individually, if available.  
51-8010 includes employment for 51-8011, 51-8012, and 51-8013. Education/training and wages are shown individually, if available.  
51-9199 includes employment for 51-9141. Education/training and wages are shown individually, if available.  
53-4099 includes employment for 53-4012 and 43-4013. Education/training and wages are shown individually, if available.  
53-6099 includes employment for 53-2022, 53-2099, 53-5031, 53-5099, 53-6011, and 53-6041. Education/training and wages are shown individually, if available.

(continued)

**Figure 2-11: Detailed 2002 to 2012 Occupational Trends  
Including Typical Education and Training Path and Wages (continued)**

Notes (continued):

9. 53-2000 does not include 53-2022 and 53-2099.  
 53-5000 does not include 53-5031 and 53-5099.  
 53-6000 does not include 53-6011, 53-6041, and 53-6099.

10. Depending upon the specific position and employer either a bachelor's degree or an associate degree are most common.

NA: Information is not available

#: Indicates a wage greater than \$70.00 per hour

Information is derived using the May 2003 OES Survey, 2002 QCEW and 2002 CES (3/03 Benchmark) data. Unpublished data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau was also used.

To the extent possible, the projections take into account anticipated changes in Wisconsin's economy from 2002 to 2012. It is important to note that unanticipated events may affect the accuracy of these projections.

Source: Office of Economic Advisors, Wisconsin Department of Workforce Development



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**Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend**

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<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
13-2011	Accountants and Auditors	62
27-2011	Actors	74
15-2011	Actuaries	64
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	68
11-3011	Administrative Services Managers	60
25-3011	Adult Literacy, Remedial Education, and GED Teachers and Instructors	72
11-2011	Advertising and Promotions Managers	60
41-3011	Advertising Sales Agents	84
17-3021	Aerospace Engineering and Operations Technicians	64
17-2011	Aerospace Engineers	64
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	62
19-4011	Agricultural and Food Science Technicians	68
19-1010	Agricultural and Food Scientists	66
17-2021	Agricultural Engineers	64
45-2091	Agricultural Equipment Operators	88
45-2011	Agricultural Inspectors	88
25-1041	Agricultural Sciences Teachers, Postsecondary	70
53-2021	Air Traffic Controllers	100
53-2099	Air Transportation Workers, All Other (OES Only)	100
53-1011	Aircraft Cargo Handling Supervisors	100
49-3011	Aircraft Mechanics and Service Technicians	92
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	94
53-2022	Airfield Operations Specialists	100
53-2011	Airline Pilots, Copilots, and Flight Engineers	100
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	100
39-3091	Amusement and Recreation Attendants	82
29-1061	Anesthesiologists	74
45-2021	Animal Breeders	88
33-9011	Animal Control Workers	80
39-2011	Animal Trainers	82
27-3010	Announcers	74
19-3091	Anthropologists and Archeologists	66
25-1061	Anthropology and Archeology Teachers, Postsecondary	70
13-2021	Appraisers and Assessors of Real Estate	62
23-1022	Arbitrators, Mediators, and Conciliators	68
17-1011	Architects, Except Landscape and Naval	64
17-3011	Architectural and Civil Drafters	64

**Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend**

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
25-1031	Architecture Teachers, Postsecondary	70
25-4010	Archivists, Curators, and Museum Technicians	72
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	70
27-1099	Art and Design Workers, All Other (OES Only)	72
27-1011	Art Directors	72
25-1121	Art, Drama, and Music Teachers, Postsecondary	70
51-2099	Assemblers and Fabricators, All Other	94
19-2011	Astronomers	66
27-2021	Athletes and Sports Competitors	74
29-9091	Athletic Trainers	76
19-2021	Atmospheric and Space Scientists	66
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	70
27-4011	Audio and Video Equipment Technicians	74
29-1121	Audiologists	76
25-9011	Audio-Visual Collections Specialists	72
49-3021	Automotive Body and Related Repairers	92
49-3022	Automotive Glass Installers and Repairers	92
49-3023	Automotive Service Technicians and Mechanics	92
49-2091	Avionics Technicians	92
39-6011	Baggage Porters and Bellhops	82
33-3011	Bailiffs	78
51-3011	Bakers	94
39-5011	Barbers	82
35-3011	Bartenders	80
49-3091	Bicycle Repairers	92
43-3011	Bill and Account Collectors	84
43-3021	Billing and Posting Clerks and Machine Operators	84
51-5011	Bindery Workers	96
19-1021	Biochemists and Biophysicists	66
25-1042	Biological Science Teachers, Postsecondary	70
19-4021	Biological Technicians	68
17-2031	Biomedical Engineers	64
47-2011	Boilermakers	88
51-5012	Bookbinders	96
43-3031	Bookkeeping, Accounting, and Auditing Clerks	84
47-2021	Brickmasons and Blockmasons	88
53-6011	Bridge and Lock Tenders	102
27-4012	Broadcast Technicians	74
43-4011	Brokerage Clerks	86

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
13-2031	Budget Analysts	62
37-9099	Building and Grounds Cleaning and Maintenance Workers, All Other (OES Only)	82
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	92
53-3022	Bus Drivers, School	100
53-3021	Bus Drivers, Transit and Intercity	100
13-1199	Business Operations Specialists, All Other	62
25-1011	Business Teachers, Postsecondary	70
51-3021	Butchers and Meat Cutters	94
51-7011	Cabinetmakers and Bench Carpenters	98
49-9061	Camera and Photographic Equipment Repairers	94
27-4031	Camera Operators, Television, Video, and Motion Picture	74
53-5021	Captains, Mates, and Pilots of Water Vessels	102
29-2031	Cardiovascular Technologists and Technicians	76
43-5011	Cargo and Freight Agents	86
47-2031	Carpenters	88
47-2041	Carpet Installers	88
17-1021	Cartographers and Photogrammetrists	64
41-2011	Cashiers	84
47-2051	Cement Masons and Concrete Finishers	88
51-9191	Cementing and Gluing Machine Operators and Tenders	100
35-1011	Chefs and Head Cooks	80
17-2041	Chemical Engineers	64
51-9011	Chemical Equipment Operators and Tenders	98
51-8091	Chemical Plant and System Operators	98
19-4031	Chemical Technicians	68
25-1052	Chemistry Teachers, Postsecondary	70
19-2031	Chemists	66
11-1011	Chief Executives	60
39-9011	Child Care Workers	82
21-1021	Child, Family, and School Social Workers	68
29-1011	Chiropractors	74
27-2032	Choreographers	74
17-3022	Civil Engineering Technicians	64
17-2051	Civil Engineers	64
13-1031	Claims Adjusters, Examiners, and Investigators	62
53-7061	Cleaners of Vehicles and Equipment	102
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	100
21-2011	Clergy	68
19-3031	Clinical, Counseling, and School Psychologists	66

**Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend**

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
27-2022	Coaches and Scouts	74
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	100
51-2021	Coil Winders, Tapers, and Finishers	94
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	94
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	80
27-1021	Commercial and Industrial Designers	72
49-9092	Commercial Divers	94
53-2012	Commercial Pilots	100
43-2099	Communications Equipment Operators, All Other	84
25-1122	Communications Teachers, Postsecondary	70
13-1072	Compensation, Benefits, and Job Analysis Specialists	62
13-1041	Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	62
15-1011	Computer and Information Scientists, Research	62
11-3021	Computer and Information Systems Managers	60
17-2061	Computer Hardware Engineers	64
43-9011	Computer Operators	86
15-1021	Computer Programmers	62
25-1021	Computer Science Teachers, Postsecondary	70
15-1031	Computer Software Engineers, Applications	62
15-1032	Computer Software Engineers, Systems Software	62
15-1099	Computer Specialists, All Other	64
15-1041	Computer Support Specialists	62
15-1051	Computer Systems Analysts	62
49-2011	Computer, Automated Teller, and Office Machine Repairers	92
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	96
39-6012	Concierges	82
19-1031	Conservation Scientists	66
47-4011	Construction and Building Inspectors	90
47-2061	Construction Laborers	88
11-9021	Construction Managers	60
47-4999	Construction Trades and Related Workers, All Other (OES Only)	90
47-5041	Continuous Mining Machine Operators	90
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	92
53-7011	Conveyor Operators and Tenders	102
35-2011	Cooks, Fast Food	80
35-2012	Cooks, Institution and Cafeteria	80
35-2013	Cooks, Private Household	80
35-2014	Cooks, Restaurant	80
35-2015	Cooks, Short Order	80

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
51-9193	Cooling and Freezing Equipment Operators and Tenders	100
33-3012	Correctional Officers and Jailers	78
43-4021	Correspondence Clerks	86
13-1051	Cost Estimators	62
39-3092	Costume Attendants	82
21-9099	Counselors, Social, and Religious Workers, All Other (OES Only)	68
41-2021	Counter and Rental Clerks	84
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	80
43-5021	Couriers and Messengers	86
23-2091	Court Reporters	68
43-4031	Court, Municipal, and License Clerks	86
53-7021	Crane and Tower Operators	102
13-2041	Credit Analysts	62
43-4041	Credit Authorizers, Checkers, and Clerks	86
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	70
33-9091	Crossing Guards	80
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	98
43-4051	Customer Service Representatives	86
51-9031	Cutters and Trimmers, Hand	98
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	98
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	96
27-2031	Dancers	74
43-9021	Data Entry Keyers	86
15-1061	Database Administrators	62
41-9011	Demonstrators and Product Promoters	84
31-9091	Dental Assistants	78
29-2021	Dental Hygienists	76
51-9081	Dental Laboratory Technicians	100
29-1020	Dentists	74
43-9031	Desktop Publishers	86
33-3021	Detectives and Criminal Investigators	78
29-2032	Diagnostic Medical Sonographers	76
29-2051	Dietetic Technicians	76
29-1031	Dietitians and Nutritionists	74
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	80
21-2021	Directors, Religious Activities and Education	68
35-9021	Dishwashers	80
43-5032	Dispatchers, Except Police, Fire, and Ambulance	86
41-9091	Door-To-Door Sales Workers, News and Street Vendors, and Related Workers	84

**Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend**

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
17-3099	Drafters, Engineering, and Mapping Technicians, All Other (OES Only)	66
53-7031	Dredge Operators	102
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	96
53-3031	Driver/Sales Workers	100
47-2081	Drywall and Ceiling Tile Installers	90
47-5021	Earth Drillers, Except Oil and Gas	90
25-1063	Economics Teachers, Postsecondary	70
19-3011	Economists	66
27-3041	Editors	74
11-9039	Education Administrators, All Other	60
11-9032	Education Administrators, Elementary and Secondary School	60
11-9033	Education Administrators, Postsecondary	60
11-9031	Education Administrators, Preschool and Child Care Center/Program	60
25-1081	Education Teachers, Postsecondary	70
21-1012	Educational, Vocational, and School Counselors	68
49-2092	Electric Motor, Power Tool, and Related Repairers	92
17-3023	Electrical and Electronic Engineering Technicians	64
51-2022	Electrical and Electronic Equipment Assemblers	94
49-2099	Electrical and Electronic Equipment Mechanics, Installers, and Repairers, All Other (OES Only)	92
17-3012	Electrical and Electronics Drafters	64
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	92
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	92
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	92
17-2071	Electrical Engineers	64
49-9051	Electrical Power-Line Installers and Repairers	94
47-2111	Electricians	90
51-2023	Electromechanical Equipment Assemblers	94
17-3024	Electro-Mechanical Technicians	64
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	92
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	92
17-2072	Electronics Engineers, Except Computer	64
25-2021	Elementary School Teachers, Except Special Education	72
47-4021	Elevator Installers and Repairers	90
43-4061	Eligibility Interviewers, Government Programs	86
39-4011	Embalmers	82
13-1061	Emergency Management Specialists	62
29-2041	Emergency Medical Technicians and Paramedics	76
13-1071	Employment, Recruitment, and Placement Specialists	62
51-2031	Engine and Other Machine Assemblers	94



<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
11-9041	Engineering Managers	60
25-1032	Engineering Teachers, Postsecondary	70
17-2199	Engineers, All Other	64
25-1123	English Language and Literature Teachers, Postsecondary	70
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	74
17-3025	Environmental Engineering Technicians	66
17-2081	Environmental Engineers	64
19-4091	Environmental Science and Protection Technicians, Including Health	68
25-1053	Environmental Science Teachers, Postsecondary	70
19-2041	Environmental Scientists and Specialists, Including Health	66
19-1041	Epidemiologists	66
51-9194	Etchers and Engravers	100
53-7032	Excavating and Loading Machine and Dragline Operators	102
43-6011	Executive Secretaries and Administrative Assistants	86
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	90
47-5099	Extraction Workers, All Other	92
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	96
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	98
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	98
51-6092	Fabric and Apparel Patternmakers	98
49-9093	Fabric Menders, Except Garment	94
45-4021	Fallers	88
29-1062	Family and General Practitioners	74
25-9021	Farm and Home Management Advisors	72
49-3041	Farm Equipment Mechanics	92
45-1012	Farm Labor Contractors	88
11-9011	Farm, Ranch, and Other Agricultural Managers	60
11-9012	Farmers and Ranchers	60
45-9099	Farming, Fishing, and Forestry Workers, All Other (OES Only)	88
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	88
45-2093	Farmworkers, Farm and Ranch Animals	88
27-1022	Fashion Designers	72
47-4031	Fence Erectors	90
51-2091	Fiberglass Laminators and Fabricators	94
43-4071	File Clerks	86
27-4032	Film and Video Editors	74
13-2051	Financial Analysts	62
13-2061	Financial Examiners	62
11-3031	Financial Managers	60

**Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend**

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
13-2099	Financial Specialists, All Other	62
43-4999	Financial, Information, and Record Clerks, All Other (OES Only)	86
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	72
33-2011	Fire Fighters	78
33-2021	Fire Inspectors and Investigators	78
47-1011	First-Line Supervisors/Managers of Construction Trades and Extraction Workers	88
33-1011	First-Line Supervisors/Managers of Correctional Officers	78
45-1011	First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	88
33-1021	First-Line Supervisors/Managers of Fire Fighting and Prevention Workers	78
35-1012	First-Line Supervisors/Managers of Food Preparation and Serving Workers	80
53-1021	First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand	100
37-1011	First-Line Supervisors/Managers of Housekeeping and Janitorial Workers	80
37-1012	First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	80
49-1011	First-Line Supervisors/Managers of Mechanics, Installers, and Repairers	92
41-1012	First-Line Supervisors/Managers of Non-Retail Sales Workers	84
43-1011	First-Line Supervisors/Managers of Office and Administrative Support Workers	84
39-1021	First-Line Supervisors/Managers of Personal Service Workers	82
33-1012	First-Line Supervisors/Managers of Police and Detectives	78
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	94
41-1011	First-Line Supervisors/Managers of Retail Sales Workers	84
53-1031	First-Line Supervisors/Managers of Transportation/Material-Moving Machine and Vehicle Operators	100
33-1099	First-Line Supervisors/Managers, Protective Service Workers, All Other	78
33-3031	Fish and Game Wardens	78
39-9031	Fitness Trainers and Aerobics Instructors	82
39-6031	Flight Attendants	82
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	88
47-2043	Floor Sanders and Finishers	88
27-1023	Floral Designers	72
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	94
51-3092	Food Batchmakers	94
51-3093	Food Cooking Machine Operators and Tenders	96
35-9099	Food Preparation and Serving Related Workers, All Other	80
35-2021	Food Preparation Workers	80
51-3099	Food Processing Workers, All Other (OES Only)	96
35-3041	Food Servers, Nonrestaurant	80
11-9051	Food Service Managers	60
25-1124	Foreign Language and Literature Teachers, Postsecondary	70
19-4092	Forensic Science Technicians	68
19-4093	Forest and Conservation Technicians	68

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
45-4011	Forest and Conservation Workers	88
33-2022	Forest Fire Inspectors and Prevention Specialists	78
19-1032	Foresters	66
25-1043	Forestry and Conservation Science Teachers, Postsecondary	70
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	96
51-4071	Foundry Mold and Coremakers	96
39-4021	Funeral Attendants	82
11-9061	Funeral Directors	60
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	98
51-7021	Furniture Finishers	98
39-3012	Gaming and Sports Book Writers and Runners	82
43-3041	Gaming Cage Workers	84
41-2012	Gaming Change Persons and Booth Cashiers	84
39-3011	Gaming Dealers	82
11-9071	Gaming Managers	60
39-1011	Gaming Supervisors	82
33-9031	Gaming Surveillance Officers and Gaming Investigators	80
39-3199	Gaming Workers, All Other (OES Only)	82
53-7071	Gas Compressor and Gas Pumping Station Operators	102
51-8092	Gas Plant Operators	98
11-1021	General and Operations Managers	60
19-3092	Geographers	66
25-1064	Geography Teachers, Postsecondary	70
19-4041	Geological and Petroleum Technicians	68
19-2042	Geoscientists, Except Hydrologists and Geographers	66
47-2121	Glaziers	90
45-2041	Graders and Sorters, Agricultural Products	88
25-1191	Graduate Teaching Assistants	70
27-1024	Graphic Designers	72
51-9022	Grinding and Polishing Workers, Hand	98
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal/Plastic	96
39-5012	Hairdressers, Hairstylists, and Cosmetologists	82
47-4041	Hazardous Materials Removal Workers	90
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	64
29-1199	Health Diagnosing and Treating Practitioners, All Other	76
21-1091	Health Educators	68
29-9199	Health Professionals and Technicians, All Other (OES Only)	76
25-1071	Health Specialties Teachers, Postsecondary	70
31-9099	Healthcare Support Workers, All Other	78

Appendix 1: Long Occupational Title and Page of Detailed Occupational Trend

SOC Code	Long Occupational Title	Page of Detailed Trend
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	96
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	92
47-3019	Helpers, Construction Trades, All Other	90
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	90
47-3012	Helpers--Carpenters	90
47-3013	Helpers--Electricians	90
47-5081	Helpers--Extraction Workers	92
49-9098	Helpers--Installation, Maintenance, and Repair Workers	94
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	90
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	90
51-9198	Helpers--Production Workers	100
47-3016	Helpers--Roofers	90
47-4051	Highway Maintenance Workers	90
19-3093	Historians	66
25-1125	History Teachers, Postsecondary	70
53-7041	Hoist and Winch Operators	102
49-9031	Home Appliance Repairers	92
25-1192	Home Economics Teachers, Postsecondary	70
31-1011	Home Health Aides	78
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	80
43-4081	Hotel, Motel, and Resort Desk Clerks	86
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	86
11-3040	Human Resources Managers	60
19-2043	Hydrologists	66
17-3026	Industrial Engineering Technicians	66
17-2112	Industrial Engineers	64
49-9041	Industrial Machinery Mechanics	94
11-3051	Industrial Production Managers	60
53-7051	Industrial Truck and Tractor Operators	102
19-3032	Industrial-Organizational Psychologists	66
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	100
49-9099	Installation, Maintenance, and Repair Workers, All Other	94
25-9031	Instructional Coordinators	72
47-2130	Insulation Workers	90
13-1032	Insurance Appraisers, Auto Damage	62
43-9041	Insurance Claims and Policy Processing Clerks	88
41-3021	Insurance Sales Agents	84
13-2053	Insurance Underwriters	62
27-1025	Interior Designers	72

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
29-1063	Internists, General	74
27-3091	Interpreters and Translators	74
43-4111	Interviewers, Except Eligibility and Loan	86
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	80
51-9071	Jewelers and Precious Stone and Metal Workers	100
51-5021	Job Printers	96
23-1023	Judges, Magistrate Judges, and Magistrates	68
25-2012	Kindergarten Teachers, Except Special Education	72
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	102
17-1012	Landscape Architects	64
37-3011	Landscaping and Groundskeeping Workers	80
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	96
51-6011	Laundry and Dry-Cleaning Workers	96
23-2092	Law Clerks	68
25-1112	Law Teachers, Postsecondary	70
23-1011	Lawyers	68
51-4192	Lay-Out Workers, Metal and Plastic	96
23-9099	Legal and Related Workers, All Other (OES Only)	68
43-6012	Legal Secretaries	86
11-1031	Legislators	60
25-4021	Librarians	72
43-4121	Library Assistants, Clerical	86
25-1082	Library Science Teachers, Postsecondary	70
25-4031	Library Technicians	72
25-9199	Library, Museum, Training, and Other Education Workers, All Other (OES Only)	72
29-2061	Licensed Practical and Licensed Vocational Nurses	76
19-1099	Life Scientists, All Other	66
19-4099	Life, Physical, and Social Science Technicians, All Other	68
53-7033	Loading Machine Operators, Underground Mining	102
13-2071	Loan Counselors	62
43-4131	Loan Interviewers and Clerks	86
13-2072	Loan Officers	62
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	82
49-9094	Locksmiths and Safe Repairers	94
53-4011	Locomotive Engineers	102
53-4012	Locomotive Firers	102
11-9081	Lodging Managers	60
45-4023	Log Graders and Scalers	88
45-4022	Logging Equipment Operators	88

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<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
53-7063	Machine Feeders and Offbearers	102
51-4041	Machinists	96
37-2012	Maids and Housekeeping Cleaners	80
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	88
49-9042	Maintenance and Repair Workers, General	94
49-9043	Maintenance Workers, Machinery	94
13-1111	Management Analysts	62
11-9199	Managers, All Other	60
39-5092	Manicurists and Pedicurists	82
49-9095	Manufactured Building and Mobile Home Installers	94
17-2121	Marine Engineers and Naval Architects	64
19-3021	Market Research Analysts	66
11-2021	Marketing Managers	60
21-1013	Marriage and Family Therapists	68
31-9011	Massage Therapists	78
53-7199	Material Moving Workers, All Other	102
43-5199	Material Recording, Scheduling, Dispatching, and Distributing Workers, All Other (OES Only)	86
17-2131	Materials Engineers	64
19-2032	Materials Scientists	66
15-2099	Mathematical Science Occupations, All Other	64
25-1022	Mathematical Science Teachers, Postsecondary	70
15-2021	Mathematicians	64
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	94
49-9011	Mechanical Door Repairers	92
17-3013	Mechanical Drafters	64
17-3027	Mechanical Engineering Technicians	66
17-2141	Mechanical Engineers	64
27-4099	Media and Communication Equipment Workers, All Other	74
27-3099	Media and Communication Workers, All Other	74
29-2012	Medical and Clinical Laboratory Technicians	76
29-2011	Medical and Clinical Laboratory Technologists	76
11-9111	Medical and Health Services Managers	60
21-1022	Medical and Public Health Social Workers	68
51-9082	Medical Appliance Technicians	100
31-9092	Medical Assistants	78
31-9093	Medical Equipment Preparers	78
49-9062	Medical Equipment Repairers	94
29-2071	Medical Records and Health Information Technicians	76
19-1042	Medical Scientists, Except Epidemiologists	66

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
43-6013	Medical Secretaries	86
31-9094	Medical Transcriptionists	78
13-1121	Meeting and Convention Planners	62
21-1023	Mental Health and Substance Abuse Social Workers	68
21-1014	Mental Health Counselors	68
27-1026	Merchandise Displayers and Window Trimmers	72
51-4199	Metal Workers and Plastic Workers, All Other	96
51-4051	Metal-Refining Furnace Operators and Tenders	96
43-5041	Meter Readers, Utilities	86
19-1022	Microbiologists	66
25-2022	Middle School Teachers, Except Special and Vocational Education	72
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	96
49-9044	Millwrights	94
47-5042	Mine Cutting and Channeling Machine Operators	90
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	64
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	98
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	92
51-4061	Model Makers, Metal and Plastic	96
51-7031	Model Makers, Wood	98
41-9012	Models	84
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	100
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	96
39-3021	Motion Picture Projectionists	82
53-3099	Motor Vehicle Operators, All Other	102
49-3051	Motorboat Mechanics	92
53-5022	Motorboat Operators	102
49-3052	Motorcycle Mechanics	92
27-1014	Multi-Media Artists and Animators	72
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	96
27-2041	Music Directors and Composers	74
49-9063	Musical Instrument Repairers and Tuners	94
27-2042	Musicians and Singers	74
11-9121	Natural Sciences Managers	60
15-1071	Network and Computer Systems Administrators	62
15-1081	Network Systems and Data Communications Analysts	64
43-4141	New Accounts Clerks	86
27-3020	News Analysts, Reporters and Correspondents	74
39-2021	Nonfarm Animal Caretakers	82
17-2161	Nuclear Engineers	64



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<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
29-2033	Nuclear Medicine Technologists	76
51-8011	Nuclear Power Reactor Operators	98
19-4051	Nuclear Technicians	68
51-4012	Numerical Tool and Process Control Programmers	96
31-1012	Nursing Aides, Orderlies, and Attendants	78
25-1072	Nursing Instructors and Teachers, Postsecondary	70
29-1064	Obstetricians and Gynecologists	74
29-9010	Occupational Health and Safety Specialists and Technicians	76
31-2012	Occupational Therapist Aides	78
31-2011	Occupational Therapist Assistants	78
29-1122	Occupational Therapists	76
43-9061	Office Clerks, General	88
43-9071	Office Machine Operators, Except Computer	88
47-2073	Operating Engineers and Other Construction Equipment Operators	90
15-2031	Operations Research Analysts	64
51-9083	Ophthalmic Laboratory Technicians	100
29-2081	Opticians, Dispensing	76
29-1041	Optometrists	74
43-4151	Order Clerks	86
29-2091	Orthotists and Prosthetists	76
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	92
51-9111	Packaging and Filling Machine Operators and Tenders	100
53-7064	Packers and Packers, Hand	102
47-2141	Painters, Construction and Maintenance	90
51-9122	Painters, Transportation Equipment	100
51-9123	Painting, Coating, and Decorating Workers	100
51-9196	Paper Goods Machine Setters, Operators, and Tenders	100
47-2142	Paperhangers	90
23-2011	Paralegals and Legal Assistants	68
33-3041	Parking Enforcement Workers	78
53-6021	Parking Lot Attendants	102
41-2022	Parts Salespersons	84
51-4062	Patternmakers, Metal and Plastic	96
51-7032	Patternmakers, Wood	98
47-2071	Paving, Surfacing, and Tamping Equipment Operators	88
43-3051	Payroll and Timekeeping Clerks	84
29-1065	Pediatricians, General	74
39-9021	Personal and Home Care Aides	82
39-9099	Personal Care and Service Workers, All Other	82

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
13-2052	Personal Financial Advisors	62
37-2021	Pest Control Workers	80
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	80
17-2171	Petroleum Engineers	64
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	98
29-1051	Pharmacists	74
31-9095	Pharmacy Aides	78
29-2052	Pharmacy Technicians	76
25-1126	Philosophy and Religion Teachers, Postsecondary	70
27-4021	Photographers	74
51-9131	Photographic Process Workers	100
51-9132	Photographic Processing Machine Operators	100
19-2099	Physical Scientists, All Other	66
31-2022	Physical Therapist Aides	78
31-2021	Physical Therapist Assistants	78
29-1123	Physical Therapists	76
29-1071	Physician Assistants	76
29-1069	Physicians and Surgeons, All Other	76
19-2012	Physicists	66
25-1054	Physics Teachers, Postsecondary	70
47-2072	Pile-Driver Operators	88
47-2151	Pipelayers	90
51-8099	Plant and System Operators, All Other	98
47-2161	Plasterers and Stucco Masons	90
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	96
47-2152	Plumbers, Pipefitters, and Steamfitters	90
29-1081	Podiatrists	76
33-3051	Police and Sheriff's Patrol Officers	78
43-5031	Police, Fire, and Ambulance Dispatchers	86
25-1065	Political Science Teachers, Postsecondary	70
19-3094	Political Scientists	66
43-5051	Postal Service Clerks	86
43-5052	Postal Service Mail Carriers	86
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	86
11-9131	Postmasters and Mail Superintendents	60
25-1199	Postsecondary Teachers, All Other	70
51-4052	Pourers and Casters, Metal	96
51-8012	Power Distributors and Dispatchers	98
51-8013	Power Plant Operators	98

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<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
49-9069	Precision Instrument and Equipment Repairers, All Other	94
51-5022	Prepress Technicians and Workers	96
25-2011	Preschool Teachers, Except Special Education	72
51-6021	Pressers, Textile, Garment, and Related Materials	96
51-5023	Printing Machine Operators	96
51-5099	Printing Workers, All Other (OES Only)	96
33-9021	Private Detectives and Investigators	80
21-1092	Probation Officers and Correctional Treatment Specialists	68
43-3061	Procurement Clerks	84
27-2012	Producers and Directors	74
51-9199	Production Workers, All Other	100
43-5061	Production, Planning, and Expediting Clerks	86
43-9081	Proofreaders and Copy Markers	88
11-9141	Property, Real Estate, and Community Association Managers	60
33-9099	Protective Service Workers, All Other	80
31-1013	Psychiatric Aides	78
29-2053	Psychiatric Technicians	76
29-1066	Psychiatrists	76
25-1066	Psychology Teachers, Postsecondary	70
11-2031	Public Relations Managers	60
27-3031	Public Relations Specialists	74
53-7072	Pump Operators, Except Wellhead Pumpers	102
13-1021	Purchasing Agents and Buyers, Farm Products	62
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	62
11-3061	Purchasing Managers	60
29-1124	Radiation Therapists	76
49-2021	Radio Mechanics	92
27-4013	Radio Operators	74
29-2034	Radiologic Technologists and Technicians	76
49-3043	Rail Car Repairers	92
53-4099	Rail Transportation Workers, All Other	102
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	102
53-4021	Railroad Brake, Signal, and Switch Operators	102
53-4031	Railroad Conductors and Yardmasters	102
47-4061	Rail-Track Laying and Maintenance Equipment Operators	90
41-9021	Real Estate Brokers	84
41-9022	Real Estate Sales Agents	84
43-4171	Receptionists and Information Clerks	86
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	70

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
39-9032	Recreation Workers	82
29-1125	Recreational Therapists	76
49-3092	Recreational Vehicle Service Technicians	92
49-9045	Refractory Materials Repairers, Except Brickmasons	94
53-7081	Refuse and Recyclable Material Collectors	102
29-1111	Registered Nurses	76
21-1015	Rehabilitation Counselors	68
47-2171	Reinforcing Iron and Rebar Workers	90
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	86
39-9041	Residential Advisors	82
29-1126	Respiratory Therapists	76
29-2054	Respiratory Therapy Technicians	76
41-2031	Retail Salespersons	84
49-9096	Riggers	94
47-5051	Rock Splitters, Quarry	92
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	96
47-2181	Roofers	90
47-5071	Roustabouts, Oil and Gas	92
53-5011	Sailors and Marine Oilers	102
41-9099	Sales and Related Workers, All Other	84
41-9031	Sales Engineers	84
11-2022	Sales Managers	60
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	84
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	84
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	98
25-2031	Secondary School Teachers, Except Special and Vocational Education	72
43-9999	Secretaries, Administrative Assistants, and Other Office Support Workers, All Other (OES Only)	88
43-6014	Secretaries, Except Legal, Medical, and Executive	86
41-3031	Securities, Commodities, and Financial Services Sales Agents	84
49-2098	Security and Fire Alarm Systems Installers	92
33-9032	Security Guards	80
47-4091	Segmental Pavers	90
25-3021	Self-Enrichment Education Teachers	72
51-9141	Semiconductor Processors	100
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	98
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	90
53-6031	Service Station Attendants	102
47-5013	Service Unit Operators, Oil, Gas, and Mining	90
27-1027	Set and Exhibit Designers	72

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SOC Code	Long Occupational Title	Page of Detailed Trend
51-6051	Sewers, Hand	98
51-6031	Sewing Machine Operators	96
39-5093	Shampooers	82
47-2211	Sheet Metal Workers	90
53-5031	Ship Engineers	102
43-5071	Shipping, Receiving, and Traffic Clerks	86
51-6041	Shoe and Leather Workers and Repairers	98
51-6042	Shoe Machine Operators and Tenders	98
49-9097	Signal and Track Switch Repairers	94
39-5094	Skin Care Specialists	82
51-3023	Slaughterers and Meat Packers	94
39-1012	Slot Key Persons	82
11-9151	Social and Community Service Managers	60
21-1093	Social and Human Service Assistants	68
19-3099	Social Scientists and Related Workers, All Other	66
25-1113	Social Work Teachers, Postsecondary	70
19-3041	Sociologists	66
25-1067	Sociology Teachers, Postsecondary	70
27-4014	Sound Engineering Technicians	74
25-2042	Special Education Teachers, Middle School	72
25-2041	Special Education Teachers, Preschool, Kindergarten, and Elementary School	72
25-2043	Special Education Teachers, Secondary School	72
29-1127	Speech-Language Pathologists	76
51-8021	Stationary Engineers and Boiler Operators	98
43-9111	Statistical Assistants	88
15-2041	Statisticians	64
43-5081	Stock Clerks and Order Fillers	86
47-2022	Stonemasons	88
47-2221	Structural Iron and Steel Workers	90
51-2041	Structural Metal Fabricators and Fitters	94
21-1011	Substance Abuse and Behavioral Disorder Counselors	68
29-1067	Surgeons	76
29-2055	Surgical Technologists	76
19-3022	Survey Researchers	66
17-3031	Surveying and Mapping Technicians	66
17-1022	Surveyors	64
43-2011	Switchboard Operators, Including Answering Service	84
51-6052	Tailors, Dressmakers, and Custom Sewers	98
53-7121	Tank Car, Truck, and Ship Loaders	102

<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
47-2082	Tapers	90
13-2081	Tax Examiners, Collectors, and Revenue Agents	62
13-2082	Tax Preparers	62
53-3041	Taxi Drivers and Chauffeurs	100
25-9041	Teacher Assistants	72
25-3999	Teachers, Primary, Secondary, and Adult, All Other (OES Only)	72
51-2092	Team Assemblers	94
27-3042	Technical Writers	74
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	92
49-9052	Telecommunications Line Installers and Repairers	94
41-9041	Telemarketers	84
43-2021	Telephone Operators	84
43-3071	Tellers	84
47-2053	Terrazzo Workers and Finishers	88
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	98
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	98
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	98
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	98
51-6099	Textile, Apparel, and Furnishings Workers, All Other	98
47-2044	Tile and Marble Setters	88
51-2093	Timing Device Assemblers, Adjusters, and Calibrators	94
51-9197	Tire Builders	100
49-3093	Tire Repairers and Changers	92
23-2093	Title Examiners, Abstractors, and Searchers	68
51-4111	Tool and Die Makers	96
51-4194	Tool Grinders, Filers, and Sharpeners	96
39-6021	Tour Guides and Escorts	82
53-6041	Traffic Technicians	102
13-1073	Training and Development Specialists	62
33-3052	Transit and Railroad Police	78
39-6032	Transportation Attendants, Except Flight Attendants and Baggage Porters	82
53-6051	Transportation Inspectors	102
53-6099	Transportation Workers, All Other	102
11-3071	Transportation, Storage, and Distribution Managers	60
41-3041	Travel Agents	84
39-6022	Travel Guides	82
37-3013	Tree Trimmers and Pruners	82
53-3032	Truck Drivers, Heavy and Tractor-Trailer	100
53-3033	Truck Drivers, Light or Delivery Services	100

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<b>SOC Code</b>	<b>Long Occupational Title</b>	<b>Page of Detailed Trend</b>
27-2023	Umpires, Referees, and Other Sports Officials	74
51-6093	Upholsterers	98
19-3051	Urban and Regional Planners	66
39-3031	Ushers, Lobby Attendants, and Ticket Takers	82
49-3099	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers, All Other (OES Only)	92
29-1131	Veterinarians	76
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	78
29-2056	Veterinary Technologists and Technicians	76
25-2023	Vocational Education Teachers, Middle School	72
25-1194	Vocational Education Teachers, Postsecondary	70
25-2032	Vocational Education Teachers, Secondary School	72
35-3031	Waiters and Waitresses	80
49-9064	Watch Repairers	94
51-8031	Water and Liquid Waste Treatment Plant and System Operators	98
53-5099	Water Transportation Workers, All Other (OES Only)	102
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	86
51-4121	Welders, Cutters, Solderers, and Brazers	96
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	96
13-1022	Wholesale and Retail Buyers, Except Farm Products	62
51-7099	Woodworkers, All Other	98
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	98
43-9022	Word Processors and Typists	86
27-3043	Writers and Authors	74
19-1023	Zoologists and Wildlife Biologists	66



**Wisconsin Department of Workforce Development** <http://dwd.wisconsin.gov>

The Department of Workforce Development offers several resources to job seekers, counselors, and employers. Four resources are described below. For a more detailed listing of resources please refer to the website at <http://dwd.wisconsin.gov>.

**Office of Economic Advisors** <http://dwd.wisconsin.gov/oea>

The Office of Economic Advisors helps customers better understand labor markets and other economic and demographic influences on Wisconsin's economy.

The Office publishes monthly and annual reports that provide an overview of county, regional, and statewide economic trends. Examples of products include:

- *County Workforce Profiles* which capture changes in population, labor force, employment by industry and wages in Wisconsin's 72 counties. These publications are updated annually.
- *Workforce Observations* which include monthly updates of unemployment rates, labor force, and employment by industry. Counties and metropolitan areas are grouped by Workforce Development Areas.
- *Economic Indicators* which are a set of 22 data series measuring Wisconsin's economic and labor market conditions throughout the stages of the business cycle. The indicators are updated monthly.
- *Employment Projections* which examine the job outlook in Wisconsin's industries and occupations. Projections are developed for Wisconsin as a whole and for Workforce Development Areas. Both long- and short-term outlooks are prepared. The long-term projections are for ten years out into the future and are updated every two years. The short-term projections are for two years into the future and are updated annually.

**WORKnet** <http://worknet.wisconsin.gov>

Wisconsin's WORKnet is an interactive web application developed to disseminate labor market, demographic and other useful data to (1) job seekers; (2) businesses; (3) economic developers; (4) boards and partners; and (5) data analysts. WORKnet helps customers make informed decisions about employment choices, wage earning potential, workforce projections, and economic forecasts.

Some examples of the information available via interactive queries or file download are:

- Civilian labor force estimates from the Local Area Unemployment Statistics (LAUS) program.
- Unemployment rates from the Local Area Unemployment Statistics (LAUS) program.
- Wage data for occupations from the Occupational Employment Statistics/Wage (OES) program.
- Industry employment data from the Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW, CEW or ES-202) programs.
- Employer information by county, industry, and/or occupation.
- Industry and occupational employment projections.

**Wisconsin Job Centers <http://wisconsinjobcenter.org> or 1-888-258-9966**

There are 78 Job Centers in Wisconsin providing 'one-stop shopping' for employers to meet their workforce needs and for job seekers to find the career planning, job placement and training services needed to get jobs. All Job Centers offer the following core services:

- JobNet, an automated system of job openings, available on-site or through internet access.
- The ability for employers to input job listings electronically through an internet connection.
- Information on education and training programs.
- Automated links to the unemployment insurance system.

The Wisconsin Job Center Contact Line is a toll-free number employers or job seekers may call to learn the phone number and address of their nearest Wisconsin Job Center. Call toll free 1-888-258-9966.

**Wisconsin JobNet <http://www.dwd.state.wi.us/jobnet>**

JobNet is Wisconsin's single largest source for job postings. Wisconsin's JobNet is a computerized system that allows employers to post job openings and job seekers to find out about job openings.

Employers can list job openings on JobNet using the Job Order System. Employers with an internet connection can use the JobNet address listed above to directly enter their job orders. Also, employers may call or visit their local Job Center to place their job orders. In the job order, employers can list the specific background, training, and other skills required for the job.

Job seekers can access JobNet through any computer that has internet access. Job seekers can also use JobNet at their local Job Center. Each job listing has information on how to apply for the job.

### Overview

The Projections Unit of the Office of Economic Advisors develops both long- and short-term outlooks of employment in Wisconsin's industries and occupations. Employment includes all nonfarm wage and salary employment and nonfarm self-employment. Employment trends in approximately 90 industries and 770 occupations are examined.

The long-term projections are for ten years out into the future and are updated every two years. The short-term projections are for two years into the future and are updated annually. Projections are done for Wisconsin as a whole and for workforce development areas.

Long-term projections assist customers in long-range planning, while short-term projections help inform customers of more immediate employment conditions. Students, job seekers, and counselors may use the projections to explore employment in occupations and industries. Educational institutions may use occupational projections to evaluate degree and/or course offerings. Researchers may use the data in analyses of Wisconsin's labor market. Employers may use the data to examine expected employment in industries and occupations.

When examining the projections it is important to realize the projections are only for one point in time. For example the long-term projections are for 2012. In order to gauge which industries are anticipated to have net increases or decreases in jobs over time, the employment expected in 2012 is compared to employment in 2002. The projections do not provide information about the dynamics of employment in the intervening years between 2002 and 2012. Employment overall, and in any particular industry or occupation, may have many ups and downs during the ten year period. However, the projections only indicate where employment is expected to be in 2012 relative to 2002.

To the extent possible the projections take into account anticipated changes in Wisconsin's economy during the projection period. It is important to note that unexpected events may affect the accuracy of the projections.

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### Data Used

U.S. Census Bureau, Decennial Censuses; U.S. Bureau of Labor Statistics, Current Population Survey (CPS) and Employment Projections; Current Employment Statistics (CES); Quarterly Census of Employment and Wages (QCEW, CEW, or ES-202); and Occupational Employment Statistics (OES).

### Industrial Employment Projections

Preparing industrial projections involves four steps. First, historical time series of industry employment are developed using data from the Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW, CEW, or ES-202) programs.

Several statistical methods and econometric models are then used to develop a set of preliminary projections for each industry. The models for the long-term projections include shift-share and ordinary least-squares models. The short-term models include trend, ordinary least-squares, autoregressive-moving average, vector autoregressive, and Bayesian vector autoregressive models.

### **Industrial Employment Projections (continued)**

Next, a panel of analysts from business, academia, and government review the historical data and the preliminary projections for approximately 50 industry groups. These groups are based on two- and three-digit North American Industry Classification System (NAICS) codes. The analysts use their knowledge of economic, social, and technological trends to anticipate future scenarios and changes in employment. Each analyst then provides their own projection for each of the 50 industry groups. The analysts' projections are then pooled and used as the basis for the final industrial employment projections for the 50 industry groups.

The fourth step involves using the employment projections from the 50 industry groups to develop industry projections at a more detailed level. The projections from each industry group are dispersed across the three- and four-digit NAICS level industries within that group.

The ratios used in the conversion from the larger 50 industry groups to the three- and four-digit levels are based on ratios that come from the national projections prepared by the U.S. Bureau of Labor Statistics. An assumption is made that each Wisconsin detailed industry's growth will be in same proportion to the more aggregate level as the U.S. detailed industry's growth is to the more aggregated U.S. level. As warranted, further adjustments are made to the projections at the detailed level.

### **Occupational Employment Projections**

Occupational employment projections involve merging data from three sources - the Occupational Employment Statistics (OES) survey, the U.S. Bureau of Labor Statistics (BLS) national projections, and the Wisconsin four-digit NAICS industrial employment for the base and projected years.

The primary source of the base year occupational data is the OES survey. The survey obtains employment by occupation within each nonfarm wage and salary industry based on four-digit NAICS. About 15,000 firms are surveyed over a three year period. Each firm is asked to report how many people are employed in each occupation and how much they are paid.

The OES Survey does not obtain a sample of self-employment or unpaid family employment by occupation. As a result, national ratios of self-employment and unpaid family employment to nonfarm wage and salary employment by occupation are obtained from BLS. The BLS ratios are based on data from the Current Population Survey (CPS). The national ratios are applied to Wisconsin OES data to estimate self-employed and unpaid family workers in Wisconsin.

BLS also provides replacement rates by occupation which are derived from the national CPS. Replacement rates are the expected rate at which job openings will emerge due to people permanently leaving a given occupation. A permanent leave occurs when a person retires, dies, or for some other reason decides to leave the occupation. In addition, BLS provides change factors which are used to estimate shifts in the distribution of employment among occupations, within each industry, over the projection period.

A base year table, called a matrix, of employment by occupation and industry is developed. The matrix is based on occupational and industrial employment for the current base year. The base year matrix is then merged with the projected year industrial employment projections, and the BLS separation rates and change factors. The merger of this information creates the projections of occupational employment by industry.